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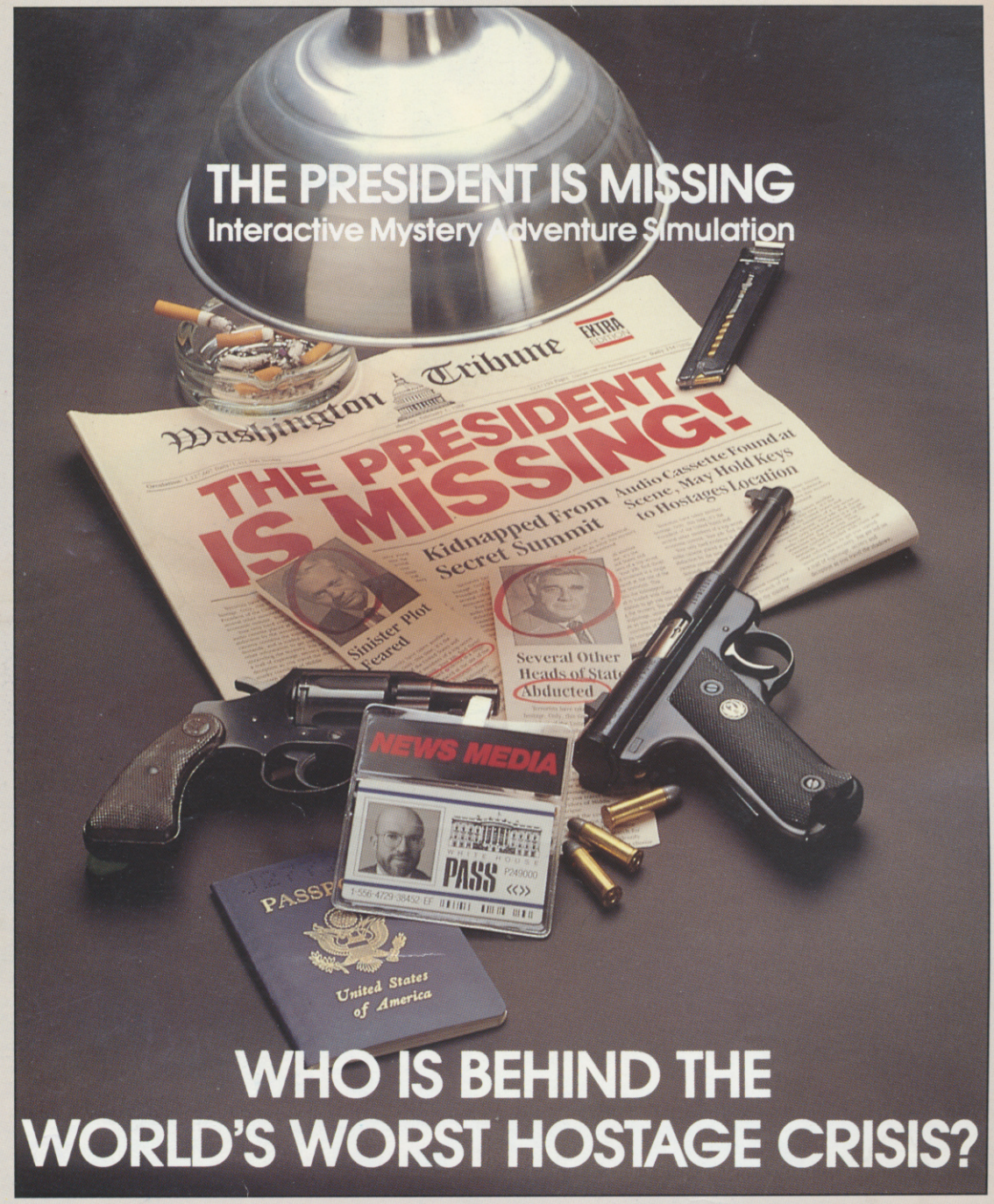

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CCI View

Dear CCI Reader,

One of the most interesting communications, from a personal viewpoint, to arrive on my desk recently was written by Peter Gerrard. It was a mini-history of CCI, tracing the magazine, as Peter saw it, over the ten years of its existence. What newer readers may not know is that Peter is a sometime Editor of CCI and so is a very appropriate historian of the magazine.

10 years in technology is an absolute age, an eon in the calendar of computing, covering vast changes and amazing progress. But the changes have been more than technological. Fashions have come and gone too. For example the games console. Ten years or so ago, it was on everyone's TV. Then when Clive Sinclair sent ZX80s in through our letter boxes and the other home computers arrived, the craze died out. Yet this month, we are testing a Sega – for, surprisingly, the games consoles may be making a comeback.

Another recurrent theme over those years has been computers as a tool for education. Too often the Sinclair and others were sold to eager parents when all kids wanted was to play console-style games. The reaction to that means that excellent programs like Microillusions' Sky Travel may now be neglected and difficult to find in computer shops. There is though still great interest in good non-game 64/128 products – as advertisers on CCI's pages will tell you. And the products have got much better over the years. Look at Billboard Maker – which lets you print out poster size – and GeoFile ... and just when they say that the 8-bit world is finished.

Not everything has gone on improving, as our article on computer viruses shows. When such worldwide organisations as Price Waterhouse begin to be alarmed than you know that the matter is serious. With electronic records increasingly taking over from documents, this technological vandalism is now moving up from the merely annoying to the genuinely dangerous. The destruction of electronic files may seem more distant, even appear slightly agreeable revenge on the ever more powerful bureaucracies that are taking control of our lives, but the effect of computer viruses can be no different from the burning of archives, private or public. No, not very funny, especially for the people affected, who may have years of work annihilated or whole areas of their lives cast into confusion.

The ten year point has also caused us to take a look back and make up an all-time great list of games. "All Time Greats' is always a highly controversial subject. In this case it's David Bishop's personal view. If you disagree with him and have a list of your own, we'd be glad to hear from you.

Will the pneumatic Maria Whittaker be on anyone's list ten years years from now? It's true the game where she is in photo and computer form is called Barbarian II but you may remember that the Boots chain of shops made fools of themselves by banning not the Barbarian I but the packaging which featured her bikini picture. Then they mixed the banned old copies with new ones and sold both. The well built Maria stars in this sequel. Will Boots protest again and give Barbarian II more publicity, or have they learned their lesson with time? Perhaps if they applied a little of the simple artifical intelligence techniques described by Peter Gerard in the second article of his new series, they would not make themselves look quite so silly and inefficient.

As for the other Peter Gerrard '10 Years of CCI' article, should we publish it? Should we take a couple of pages – and there is always pressure for space – to tell you how it all happened? Would that interest you or it just massaging our own egos for CCI having survived ten whole years? Tell me what you think. Nobody has written lately telling me that CCI is rubbish and what we should do to make it into a decent magazine. 10 years and now silence ... There must be something wrong ...

Yours sincerely,
Antony Jacobson,
Managing Editor and Publisher

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An Apple a day?

The Big Apple Entertainment Co Ltd have told us about their new 'frequent-buyer club,' with the 'best deals' in the land. Five months of careful planning and research have gone into the setting up of the new scheme, christend The Bronx Club, tying in, of course, with Big Apple's streetwise New York image.

Leader ofthe gang, Bronx Billy, the company's cheery little mascot, will greet all participants with his catch-phrase "Have a nice play!"

Games buyers who send a stamped addressed envelope to Big Apple will receive by return post their free membership pack, including membership card and a collecting leaflet. All games released by Big Apple, including the first release, OOPS! will carry a number of juicy apple tokens, to be collected on the special leaflet. Filled leaflets will then be exchanged for a wide range of gifts such as records, tapes, CDs, T–shirts etc, selected from the huge stock of products distributed by Big Apple's parent group, Prestwich Holdings the major leisure and entertainmnt corporation. Big Apple's head, Terry Ashton, explains "We may carry over the tokens onto other Prestwich products, and also print special starter tokens in magazines. The Bronx Club will hit the software market in a big, big way." Why not take a bite? Contact: Big Apple, 12 Brunswich Way, Brunswick Industrial Park, London NW11 1HX. Tel. 368 5545.

Free Videos

Kodak is offering a pack of three E180 video cassettes, one of which features The Prince's Trust Gala Concert, with every order for ten boxes of Kodak diskettes from Action. The Kodak range includes 5.25in, 3.5in and 8in diskettes, all available from Action for next day delivery.

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There are three difficulty levels. Novice – for beginners and amateurs, apprentice – for players striving for a first team place, professional – for first teamers dedicated to winning an international cap.

Discovery Introduces *Virus Infection Protection*

Discovery Software International, has announced a breakthrough in viral protection for the Amiga. It is called Virus Infection Protection (V.I.P.), the first Amiga software package to offer a preventive cure for viral disk infection.

"You've heard the expression, 'an ounce of prevention is worth a pound of cure,' well that's V.I.P. in a nutshell," says Rick Ross, president of Discovery Software International, "V.I.P. works like a vaccination to safeguard a user's entire library before a virus hits."

Responding to a growing concern in the computer industry about the threat which viruses pose both to customers and manufacturers, Ross set the development of V.I.P. as a major priority for Discovery Software. "We have come up with an effective means of combating this problem," Ross says. "Prevention is the only viable solution; once a virus is discovered, it's usually too late."

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STAR PRESENTS PRINTER TO PRINCE OF WALES' CHARITY SHOW

Star Micronics has presented its first LC–10 dot-matrix printer made at its new manufacturing plant in South Wales, to The Prince's Trust, the charity organisation whose President is The Prince of Wales.

Speaking at the presentation ceremony, held on the opening day of the PC User Show, Star Micronics' Managing Director, Mr T. Takahashi, said: "The production of our first printer at the new facility in Wales is an important milestone in the development of the Star organisation as a whole, and I am delighted to present our very first machine, not only to a worthy cause, but to an organisation which also has 'Welsh connections'."

The factory started production at the beginning of April with an initial output of around 10,000 units per month.

It will be producing machines for the Japanese company's three European sales subsidiaries in the UK, West Germany and France. It will concentrate its output on the recently-launched LC–10 dot-matrix printer, the first of which for the UK market was rushed to the PC User Show for presentation to Dr William Smith, of Prince's Trust Events Ltd.

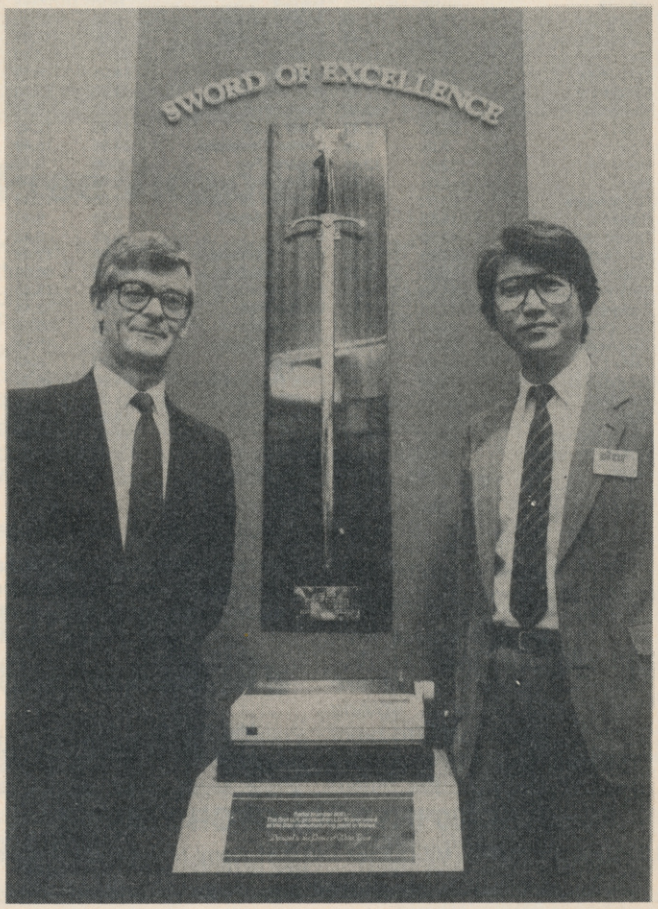
Introduced to replace Star's NL–10, the Multifont LC–10 offers high quality printing at 144 cps in draft and 36 cps in NLQ, eight resident fonts, six print pitches, and "paper parking" facility at £229.

Background to Welsh Factory

The manufacturing facility, comprising some 5,000 sq m, is located on the Welsh Development Agency's Tafernaubach Industrial Estate, near Tredegar (30km north of Cardiff). From an initial volume of around 10,000 printers per month, it is anticipated that the capacity will be increased to around 30,000 units per month by the end of this year. And, with 35,000 sq m of land, in addition to the existing building, further expansion is likely to follow. Star Micronics Manufacturing U.K. Ltd expects to create around 75 new jobs in the first year of operation, with a target workforce of more than 180 by 1990.

When announcing plans for the factory, Mr Seiichi Sato, President and Founder of Star Micronics Co Ltd said, "Our investment in the new plant reflects both the significant success of Star subsidiaries in Europe, and the achievement of our stated aims to invest in overseas countries where local demand is strong and growing."

The factory is equipped with one of the most advanced printer quality control systems in the U.K. including a fully automatic testing chamber running what is probably the most rigorous quality inspection in the industry. Each and every printer undergoes an intensive, automatic inspection routine in which all features and functions are fully tested prior to final visual checking.



Computer Museum

The Deutsches Museum Munich has set up an exhibition tracing the history of computers – the largest of its kind in the world.

It contains 700 exhibits, covers an area of 1,000 square metres, and will be joined by exhibits on microelectronics and telecommunications.

The exhibition displays ancient mathematical devices, mechanical computers developed during the Renaissance, punched-card, relay, valve and transistor systems, and ends with present-day PCs.

Compatible Fax Card

Anyone with a PC can receive and transmit information to and from fax machines across the world with Microfax from APL Data Communications.

The device is an easily installed card which is designed to work with XT and AT computers and their compatibles. When fitted, the PC can communicate directly with Group III fax machines over dial up telephone lines using the on board modem.

Software supplied on the board consists of a communications program to handle receipt and transmission of data as well as some utility programs. These are said by the company to perform such tasks as conversion of ASCII files to fax formats ready for transmission.

APL Data Communications. Tel: 01-208 2766.

'Natural' Listing Paper

Zweckform have brightened their range of recycled computer listing paper for micro users. A new pastel shade of green joins the traditional off-white, bringing a warmer, 'natural' mood to synthetic office environments.

Packaged in boxes featuring a useful carrying handle, the new paper and traditional off-white are both available in packs of 1,000 sheets retailing at £10.87 (inc. VAT), while off-white is also boxed in quantities of 500 at £5.98 (in. VAT).

Zweckform produce their new listing paper from recycled paper to help conserve the Earth's natural resources. Recycled paper saves trees, energy, and water, and creates less pollution. The finished product is equivalent in quality to comparable grades of wood-free paper, but is generally less expensive.

Zweckform's listing paper measures 11″ × 240mm and is compatible with all popular makes of computer prices.
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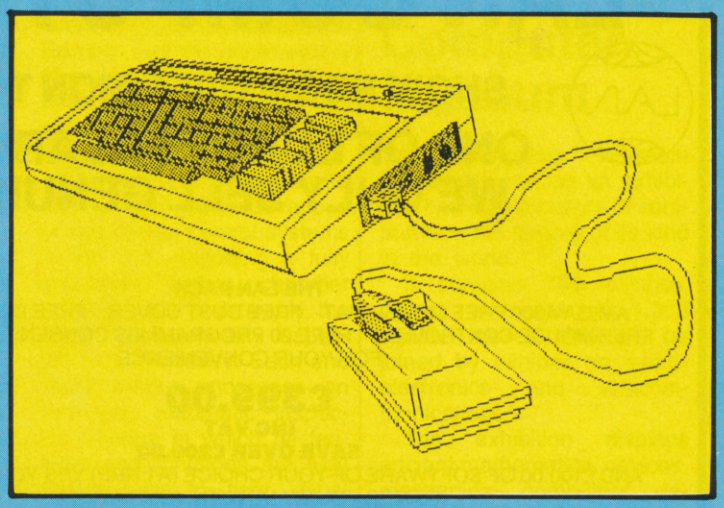
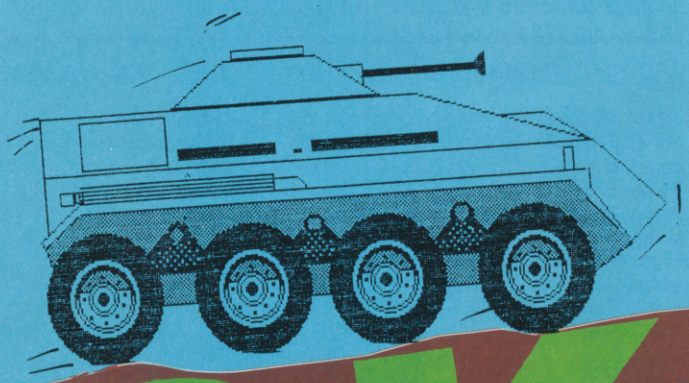
Today's discerning Commodore users seem only to demand the best from their equipment. And why not? Here is a set of disks that using the Geos system help you to achieve really professional illustrations.

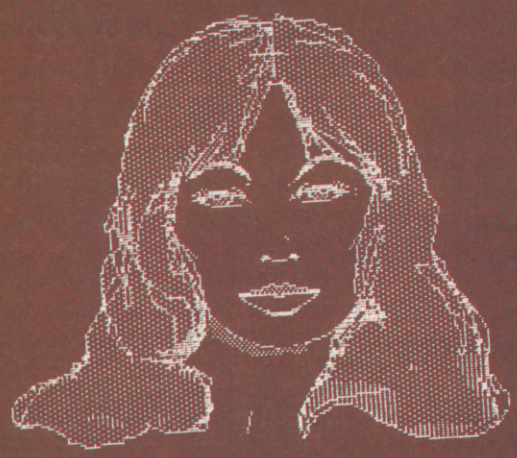
If you are an existing Geos user, then take a look at just a few of these high quality clip-art drawings. All of these illustrations were created using Geos by a group of people in California called "Those Designers". There are quite a few disks available at the moment and each disk contains several "pages" of clip-art pictures. More disks are being created and will become available later.

First of all Diskart 1 has several files that will give you a real taster for wanting to use several more.

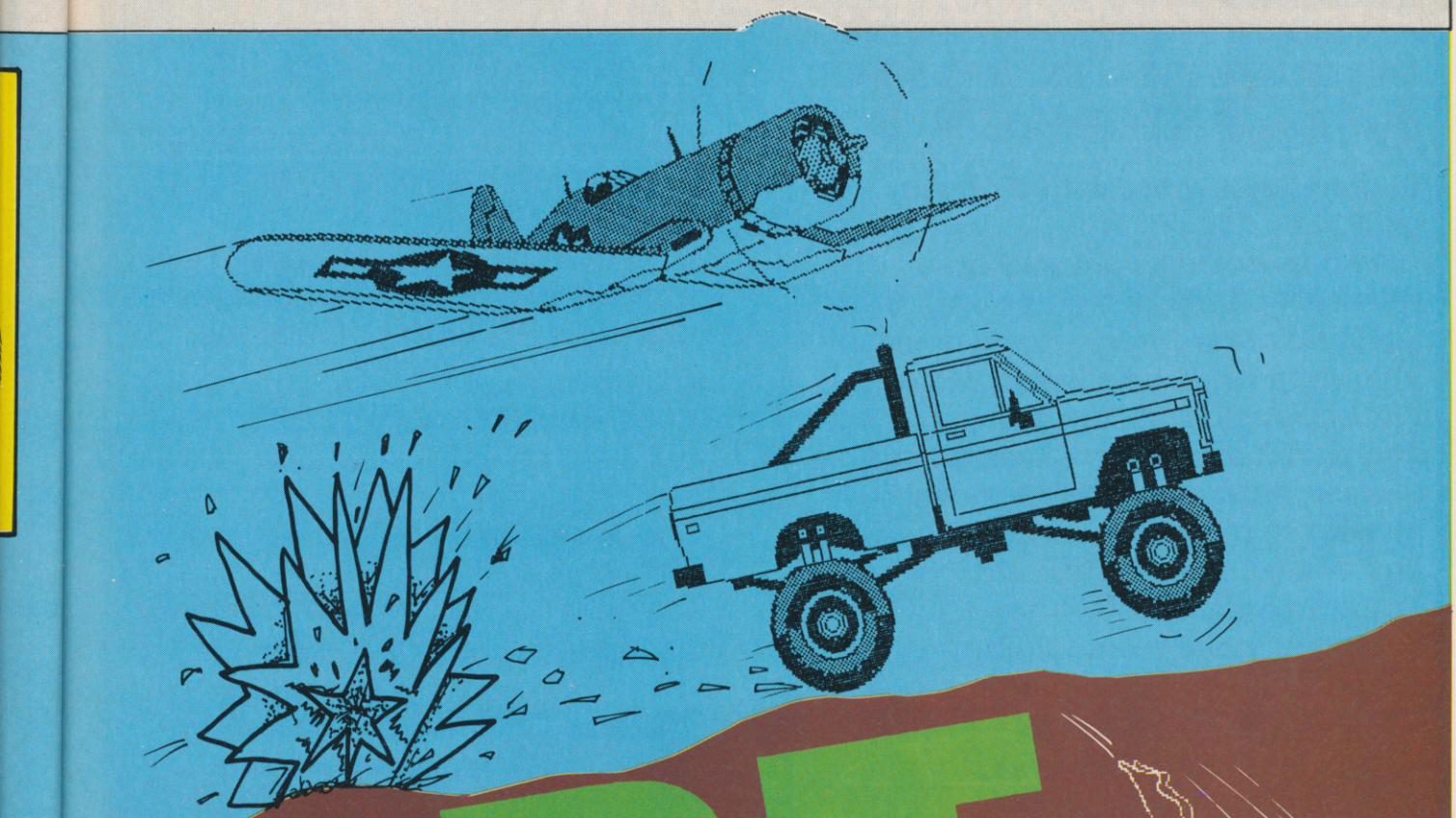




DISK



When I first started using Geos, I suppose like many, I believed the system allowed so much freedom it could be possible to draw almost anything. However, if your artistic ability, or your imagination, is too limited, then possibly no system can totally compensate for your shortcomings. Here is at least a good opportunity to see how the professional designers make up their illustrations.



ART

Using clip-art is a quick and easy method to illuminate your documents so that is why these disks have been created, and they can help you produce first class results.

So what is on Disk 1 then? Well, there are a couple of groups of images called Graphic Goodies 1 and 2. All the usual, and some very unusual images are there. Weather graphics and some holiday pictures. GeoPaint tips 1 and 2 are pages of helpful ideas to give you a better understanding using GeoPaint with some great pointers to improve your own images.

Diskart 2 contains graphic goodies 3, holidays 2, little guys (a page of funny little men in different poses), a page of maps of the USA, and some musical instruments. Diskart 3 contains loads of pictures of vehicles and planes. Diskart 4 has another varied spread of illustrations. Diskart 5 gives a make-a-face page (a bit like an identikit with mouths, noses, eyes and heads etc.) More little people (this time little women), houses and banners. Diskart 6 gets the animal treatment, all farms and zoos, space creatures, dogs and cats.

cont. on next page

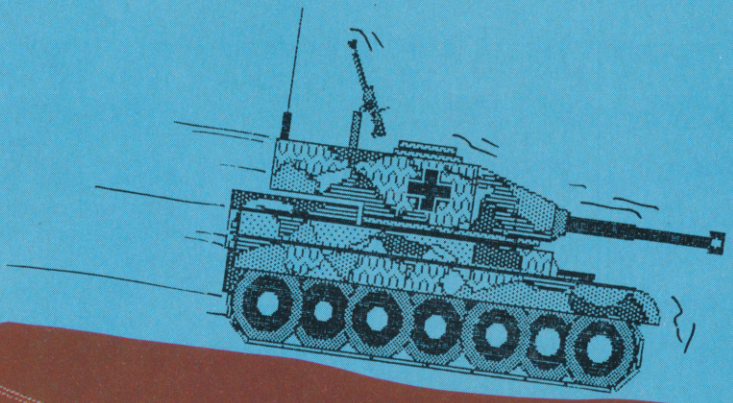
DISKART *continued*

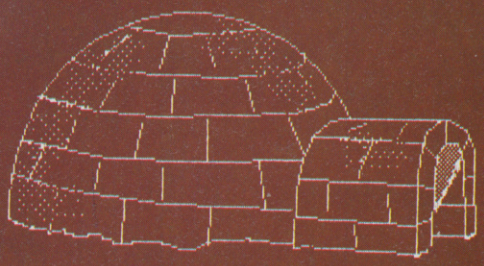
Diskart 7 has more varied pages of images.

Two more disks are available now called Diskforms 1 and Musi-kit. Diskforms 1 has a ready made inventory form, a delivery receipt, bank deposit form, lined paper and also 5 blank forms with a page of user instructions. With these, as with all others, you can alter and design to suit your own requirements. Musi-kit is a complete system containing images allowing you to create professional looking sheet music. All titles and piano staffs etc.

Diskart is here to help you where you cannot help yourself. I have had my imagination fired using these images. They give you a chance to edit all the illustrations on disk, so if you don't quite like the one you see, it can be changed to suit, using all the powerful GeoPaint editing commands. The disks containing GeoPaint tips give lots of ideas that will improve every users artistic abilities.

If you have Geos and would like access to super graphic images there is none better than these.

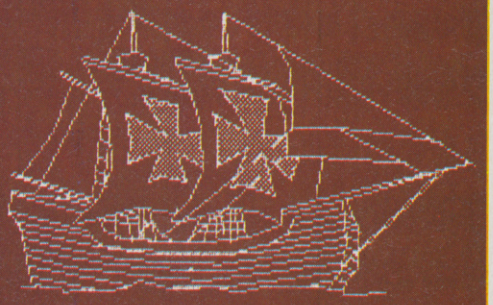




Drawn by professional graphic designers for humble old people like me to use. All nine disks are available separately.

B.C.

Contact: Financial Systems Software Ltd, 18 High Street, Pershore, Worcester WR10 1BG
Tel: 0386 553153
Price £9.95 each



My cassette is sick, Doctor

The Datasette Doctor Trilogic says is an essential aid to eliminating tape loading problems. The more a cassette is used the greater the chance of failure due to permanent magnetic effects, dirty record/playback heads and misalignment. Although turbo loading tapes have proved to be the greatest boon for C64 users, they can also be the biggest curse. The high speeds require greater precision in head alignment or all is lost.

Cassette tapes consist of an iron or chromium oxide dust adhering to a plastic tape. Each time the tape is played a little of the oxide rubs off onto the playback head. As time passes the smooth surface of the head is coated with more and more rough oxide and wear increases. If the head is not cleaned the cassette recorder can fail to read and record properly and, secondly, the head can become magnetised causing partial erasure, thus weakening the signal.

The Datasette Doctor kit comprises a head cleaner with fluid, demagnetiser and a cassette of speed test programs. The azimuth adjustment requires a screwdriver, so that is supplied too. Additionally the datasette circuitry is tested and interference from the TV and any mains wiring is also indicated.

Contact: Trilogic, Bradford (0274) 691115.

Voice & Data

Companies which have both voice and data transmissions between remote offices can now combine these cost effectively using a KMX Multiplexer and a digital link, such as British Telecom's Kilostream service.

Once the capital costs have been incurred and the Kilostream line rented, there are no other charges. This gives considerable savings over separate dial-up calls through the public telephone network, especially as volumes grow.

The KMX range of multiplexers is manufactured by Dowty and distributed by APL Data Communications. For direct point-to-point connections between individual offices, the KMX 1000 provides 8 data channels or a combination of 4 data and one voice channel over a single digital line at 64 Kbps.

One major advantage of the KMX 1000 is that it offers both synchronous and asynchronous operation; communication with mainframe computers is generally synchronous whilst with PCs it is asynchronous; thus both types of hardware can be catered for.

For larger users, the top of the range KMX 8000 gives up to 60 channels and will connect, say, the Head Office to Branch Offices in a digital network, linking both switchboards and data processing devices.

The KMX 8000 is both modular and soft in design. Upgrades can easily be added by a simple card replacement in the hardware. Its centralised software control means, for example, that it can be reconfigured for different set-ups during day and night operations. This could involve voice links in the day with limited data transfer, then switching overnight to pure data for polling remote terminals or data collection points. A day's business recorded on PCs at branch locations could, in this way, be interrogated by a Head Office computer during the night hours.

The cost of a KMX 8000 can be as little as £2,000 at each end of a link, making it very cost effective for companies entering into digital networks for the first time.

Contact: APL Data Communications, Unit 8, Fleetway North Business Park, 715 North Circular Road, London NW2 7AT. Tel: 01-208 2766.

AMS Scanner In

AMS, the works which has been branching out into DTP, has launched alow-cost scanner for the PC.

"I think we have truly thrown a 'scanner' in the works," said AMS managing director Nick Pearson.

The Microscan is a hand scanner with a 105mm wide head, and costs £249 on its own, or in a series of bundles including AMS' mouse and Finesse DTP software. It is a version of a Mitsubishi product, gives resolution of 200dpi and has a range of 16 shades of grey. Its bundled scanning software will run under Windows, Gem or MS-DOS.

'Fist' Company Taken Over

YPA Software Distribution Services has announced that it has acquired Melbourne-based Software Licencing & Marketing Pty Ltd (SLM).

The YPA-SLM transaction makes YPA the fastest growing player in the Australian software distribution and marketing business. Established at the beginning of 1988, YPA offers prospective software houses a complete marketing and distribution support programme.

Commenting on the transaction, Brian Clayton, YPA managing director, said "We are committed to becoming the leading Australian software marketing organization. The SLM acquisition consolidates and enhances our distribution channels."

With the SLM acquisition, YPA is further well position to give UK companies the visibility and support they require to stay successful in the Australian marketplace. SLM has long been recognised as a major supplier of home computer software in Australia and will continue to service its exclusive Australia/New Zealand distribution contracts with leading UK software houses.

Alfred Milgrom, publisher, Beam Software – creators of 'The Way of the Exploding Fist', 'Fist' and 'Rock & Wrestle' – added "We are very pleased to have made this arrangement with YPA. Software distribution needs a professional, business approach which we know YPA is providing to this market. The transaction allows us to concentrate on software development."

YPA Software Distribution Services, located at Castle Hill, NSW, is the trading arm of YPA Holdings Pty Ltd. The company has exclusive distribution agreements with American-based Mindscape Inc., Thunder Mountain, Cinemaware and the Channelmark Corporation.

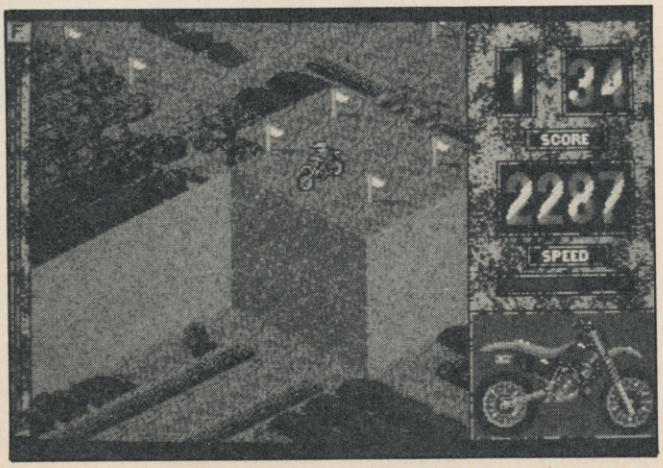
'Tronic go Mad (£14.99)'

'We must be mad!!!!! says Mastertronic. For the first time Mastertronic are producing a mad label at £14.99 . . .

To start their new range they are releasing motorbike Madness.

It's a challenging motorcross simulation coming out on Amiga & IBM.

There are several releases hitting the streets all '16 bit quality with budget price,' 'Tronic claims.



Ocean's Away!

Ocean are releasing a whole range of new games. (We swear there are direct quotes from Ocean's [overexcited] PR Person Tracy! We don't know what they give them to drink up there in Manchester. But it isn't Lucozade!)

VINDICATOR

Alien forces wreak havoc on our plant. The earth torn and blasted in what seemed the final war. But enough survived to uphold the laws of justice and revenge. Now one man must face the final enemy.
He is, The Vindicator.
Across a tortured landscape against incredible odds he must battle through to the enemy stronghold, down into maze-like corridors filled with mutated guardians until he reaches the inner sanctum of the dark overlord to strike the final blow of retribution.

Become The Vindicator in the multi-sectioned game of survival as state-of-the-art graphics take you on the adventure of a lifetime.

Strike back, before it's too late!

SALAMANDER

Salamander, the frenetic Tracy goes on:
If you've had nightmares about falling helplessly intothe depths of space, then imagine that space dominated by a tyrannical creature whose evil surpasses even your deadliest dreams.
The Salamander.
The subjects of its cruel regime await desperately to be freed from the horrors of the Salamander's slavery.

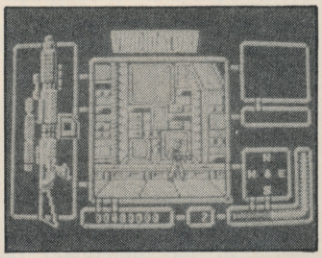
You can free these unfortunate creatures only by annihilating this force of evil and destruction that lurks so monstrously over the edge of infinity.

But is you don't . . .
What it all means, goodness knows.

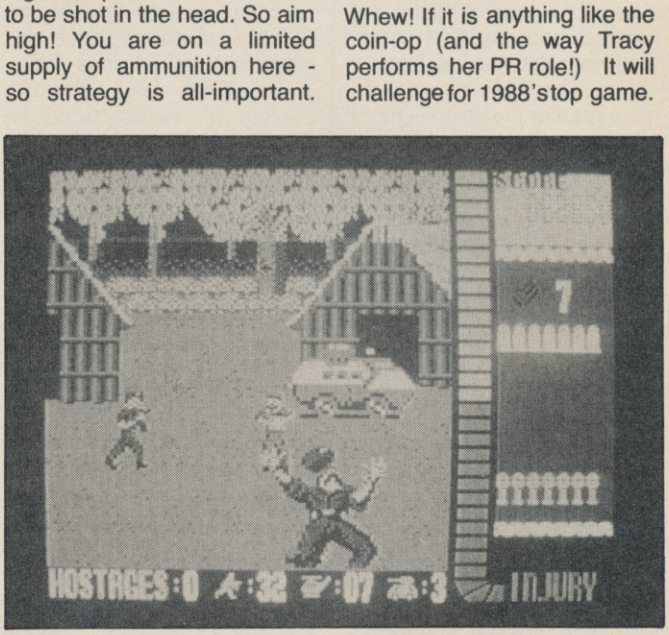
OPERATION WOLF

Now this one may just be all Trac cracks it up to be!
A conversion of the number one coin-op machine this year. Six levels of blasting action as you take on the role of a mercenary soldier of fortune given the job of rescuing politically sensitive hostages from a war-torn land.
More action than the run-of-the-mill game player can handle!
Level 1
Contend with enemy soldiers parachuting down, firing their hand weapons as they come. Helicopters need rockets to destroy them or VERY concentrated firepower. Watch out for the occasional soldier who runs in close to fire at you at point-blank range! Lightning reflexes are a must – and soldiers can never relax.

Level 2
The jungle scenario. Heavily armed guards appear from behind the trees. Beware of the heavily armed paramilitary thugs who speed past downriver on their powerful craft, they are not friendly.
Level 3
Suffering from a knife wound and exhausted, you stumble into a native village to face yet more hostile troops. Look out for the extra anti-tank bomb icon which falls down the screen – shoot it.



Level 4
The Powder Magazine section. The helicopters are back! Joined with armoured cars. This one is going to be tough, but with strategic and concentrated blasting and by collecting all your extra ammunition icons – you can do it.
Level 5
The Concentration Camp. Careful aiming rather than random blasting is required here as the guerillas are wearing bullet proof vests and need to be shot in the head. So aim high! You are on a limited supply of ammunition here - so strategy is all-important.
Don't forget to free the hostages!
Level 6
You have arrived at the Airport with your collection of hostages and now you have to get them unscathed to the plane. This section throws EVERYTHING from all previous sections at you! Culminating in a head-to-head with the all-powerful War-Monster Helicopter, Level 6 will tax your reflexes and game-playing abilties to the extreme.
Whew! If it is anything like the coin-op (and the way Tracy performs her PR role!) It will challenge for 1988's top game.



DALEY THOMPSON 88

This title is due for release to coincide with the Seoul Olympics, held in August. (No, sorry, Tracy they're in September). It will perhaps be Ocean's biggest release of 1988 and is destined to be one of their top selling titles of all time – as was Daley Thomson's Decathlon and Daley Thompson Star Events.

Ocean have linked up with Addidas in order to bring out a state of the art sports simulation with ten events plus training sessions which have to be completed in order to build up Daley's stamina and speed.

Touches of humour and 'brilliantly expressive graphics' (what does that mean Tracey?) make Daley's personality come alive on screen. On the 16 bit machines Daley will be depicted in 'living digitsed animation!' *(Next month more 'Adventures of Excitable Tracey! – the only Mancunian to fly very high without the benefit of an airplane.)*

Aladdink's Magic?

Commodore owners who use a printer will be aware of the high cost of replacement ribbons, which often do not last very long. So ALADDINK's fabric ribbon re-ink service could come in handy. For about 1/3rd the price of buying a new ribbon cassette, ALADDINK can re-ink your old one. For example, the price of re-inking a black MPS 803 ribbon is £1.65. However, if you can obtain new ribbons for less than twice this re-ink price (ie for less than £3.30 inc. p&p etc) and can prove it, then ALADDINK will charge you just half that price. Turnaround is usually 24 hours, never more than 3 working days.

ALADDINK can also replace worn ribbon, or change black ribbon with colour ribbon if required.

Also on offer is a home re-ink kit suitable for the MPS 801 at just £8 (Min. 25 re-inks guaranteed), or a hand-operated home re-inking machine suitable for the MPS 803 (and most other continuous-loop fabric ribbons) at £59.50.

ALADDINK can be obtained on 08907 50965 9am–8pm Mon–Sat or by writing to ALADDINK, Eyemouth, Berwickshire TD14 5AP (See CCI's Magenta Pages for ALADDINK's special trial offer for first-time users of the service.)

End of WP?

The latest Office Systems Industry Report from Dataquest, the US-based technology market research group, predicts the demise of the dedicated word processor by 1992 in office text processing and publishing.

In the US, shipments fell sharply last year to 19,200 units, worth $124m. Sales amounted to $764m in 1986 and had peaked at $1.6bn in 1984.

The decline has occurred while the personal computer, able to carry out other tasks as well as word processing, has swept the office text market. Sales are expected to top $11.6bn this year, having risen from $6.5bn in 1984.

Dataquest points out, however, that there is now a large installed base of 971,000 dedicated word processors in the US, of which Wang has 25 per cent, followed by IBM with 17 per cent.

The research group believes that during the next five years, these users will actively begin to switch to PCs and other multi-function workstations. "This installed base will be a battle zone, with established vendors fighting to protect their own customers from other document management system suppliers trying to make inroads into new territory," says Dataquest.

No More Slipped Disks

Its new Drive Doctor kit Trilogic claims, performs a complete physical on Commodore's 1541 disk drive range and helps to nurse it back to perfect health.

With the Drive Doctor in operation, tests can be performed to check the speed of the drive, the back stop setting, inner and outer track alignment, head movement and stepper motor hysteresis.

Even under normal operation ageing will create problems. Fast formatters, turbo loaders and quiet drive stops are all devised to make disk operations easier and quieter, the disadvantage is that the drive is pushed to its limits. Sooner or later something's got to give. With Drive Doctor in your library, Trilogic tells us the answer is at hand for all but the more serious electronic faults. Running the program will help to diagnose and cure the more common physical problems and real time results are updated on the screen as adjustments are made.

An advantage is that Drive Doctor is a physical test program that comes on cassette because what good is a disk based system when the disk drive won't load?

At £14.99, Trilogic thinks Drive Doctor is an insurance policy which can actually save money the first time it is used. Disk Doctor runs in C64 mode and is compatible with 1540/41/41C drives.

Contact: Trilogic, Bradford (0274) 691115.

Accolade's PC line–up

Accolade has announced the release of Card Sharks, a card playing simulation featuring Poker, Blackjack and Hearts, and Apollo 18, the depiction of an actual moon flight, for the IBM and PC compatibles.

In Card Sharks the player faces interactive computer controlled opponents seated on the other side of the table. These can be members of the local card club, the dealer, or three famous opponents, Gorbachev, Reagan, or Thatcher. Each have their own distinct personality and their own style and strategy of playing cards. These cartoon-style characters will ask questions and speak their own mind when their game turns sour.

During game play, the screen displays the card table, your three opponents across the table and your hands holding your cards. Card Sharks allows the player to experience the look and feel of playing cards.

Apollo 18 is the realistic depiction of an actual moon flight. The screen graphics are based on actual footage of the Apollo missions and depict the different stages of moon flight in detail.

The player assumes two roles in the game, one of mission control specialist and one of astronaut. In each of these roles the player must accurately perform a variety of precise tasks from pre-launch to splashdown in order to complete the mission. If any phase of the game is not performed correctly, the player will either have to abort the entire mission, eliminate a certain part of it, or return to earth.

Price of both programs is £24.95.

Dysan's Free Boxes

Dysan is currently offering a multi-purpose storage box for diskettes and/or data cartridges with every ten boxes of their 3.5in or 5.25in diskettes ordered from Action Computer Supplies.

The specially designed storage box is fitted with adjustable dividers allowing it to hold either diskettes or data cartridges, or various combinations of the two: e.g. two data cartridges, 60 × 5.25in diskettes and 30 × 3.5in diskettes. The box shown has its dividers arranged to hold up to five cartridges and 60 × 5.25in diskettes.

Contact: Action Computer Supplies, Abercorn Commercial Centre, Manor Farm Road, Wembley, Middx HA0 1WL. Tel: 0800 333 333.

Trilogic anti the anti-piracy league

Trilogic have launched a scathing attack on what they call the hypocrisy of software houses who criticise their Expert Cartridge on one hand saying it encourages piracy and yet on the other hand allow its use for the programming of their computer games.

The anti-Expert brigade, Trilogic claims, is so strong that one Commodore magazine was forced into a situation of not allowing Trilogic to advertise Expert in the magazine for several months. Many Commodore programmers, however, not ony use the cartridge, but positively endorse it as an essential aid to programming.

Some software houses, such as Durell and Future Concepts, have actually given Trilogic credits on their inlay cards, but a major budget producer has refused to give Trilogic any credits whatsoever and this is despite the fact it can be proved that Expert was used for the coding of their titles.

The programming aid aspect of Expert derives from two of the product's features. One of the programs within Expert is called a monitor and this enables the user to disassemble the program currently in the computer's memory. In this way he can easily study a program. As the Expert has its own memory, the monitor can be employed even if the program uses up all of the computer's memory, without over-writing. Secondly, it enables all the routines making a particular program to be stored in one file so that a loading screen, for example, can be added quite easily.

One programmer who freely admits that he uses Expert is John Twiddy, the author of Ikari Warriors and Last Ninja. John was initially involved in a development of the Expert as a programming aid. He says "The Expert Cartridge enables me to program much faster. Without Expert, Last Ninja would have taken me a lot longer to program and would not have appeared on the shelves until many months later." Trilogic also argue that the Expert for a budding programmer and even a complete beginner is an essential tool.

Commenting, Trilogic's Joint Managing Director Graham Kelly, said "It is with reason that our main product is called Expert. Any person who uses their Commodore for serious purposes would probably acknowledge that in their opinion Expert is an essential tool."

Cascade of Change

Cascade Games Ltd., one of the longest established software houses, has been rumbling about change for sometime now and the carefully laid plans are just coming to fruition.

The first major launch was "GAME BUSTERS", Cascade's new budget label and to set the label moving they released ACE (Air Combat Emulator) recently, and it shot to Number One.

This success is to be followed shortly by HADES NEBULA, due for release shortly.

"Cascade Systems" – is their new business software label, geared up to release its first product, "PC IMMUNISE". The aim is to produce good quality business software at an affordable price.

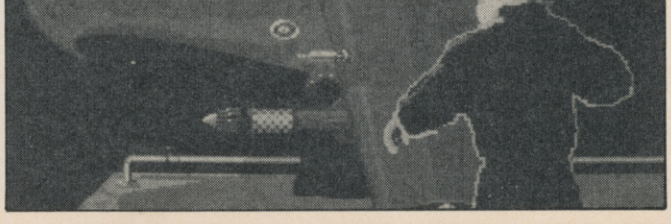
Not forgetting the premium range from Cascade Games; who will be hitting the shelves soon, with their hottest release to date "19".

There are rumours of 'Cascades' of Educational Software – Watch this space for more details.

Arcana's Mars Cops

Due for launch shortly is Arcana Software's "Mars Cops" (Amiga only). In this action shoot 'em up you play a crack member of the United Interplanetary Police Force who are dedicated to ridding the galaxy of those nasty aliens who have been giving your Mars-based colony more than a little trouble of late. They are getting more daring every day, shooting up civilian ships and sabotaging colony installations. They also seem to be amassing some kind of an invasion fleet out by Jupiter. The problem is that this is the next century when Earth has little in the way of its own defences. You have to stop the aliens now, before they decide to turn their attentions on the rest of the Solar System. Another day might be too late . . .

Whether you're zooming through asteroid belts around Mars or trying to land your craft back at base in a tricky tail wind, Arcana say there is enough skill, strategy and bloodletting in this game to keep any crazed psychopath amused for hours.



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ART OF THE LANCE

It is not surprising that role-playing on computer games and also in its other multifarious forms is becoming more and more popular. Not only is the generation that first had computers in their own rooms getting older and demanding more than just shoot 'em ups but also some of the really creative people who previously might have looked down on role-playing are now becoming involved. They are people who are capable of all sorts of exciting expressions of their talent; whether it is in programming games like SSI's 'Heroes of the Lance' or 'Pools of Radiance' or creating the accessories that role players demand to add realism to their play. (We have heard of 30 sided dice!)

One of the areas where high levels of talent is already to be found is in the books that go with the AD and D material. A book that has reached us which will attract all players of the 'Heroes of the Lance' genre is based on the fantasy best seller 'The Dragon Lance Saga' and is called, unsurprisingly, 'The Art of the Dragon Lance Saga'.

The quality of the imagination and draughtsmanship that the illustrations in the book demonstrate is absolutely stunning. These are pictures of an eye-magnetising hyperrealism. Within their witches and warriors, castles and monsters content, they can reasonably be compared to the genius of the between-the-world-wars surrealist artists whose paintings now decorate the walls of art galleries and museums around the world.

'The Art of The Dragon Lance Saga' by M. Weis and T. Hickman
TSR UK Ltd.,
ISBN: 0-88038-449-5
Price £9.95

Interestingly, in the illustrations of this book, as with much role-playing, it is the macho man – the bulging muscled, sword-bearing, hairy-chested hero – that dominates. I say interestingly because the two people credited in this book with being responsible for the cult of Dragon Lance are both feminine – Margaret Weis – who edited the original series and Tracey Hickman who wrote the initial tale called 'Eye of the Dragon'. One wonders what the feminists make of the sexily-draped, full breasted heroines and slaves who decorate the pages and the stories of the role-playing world.

Perhaps sometime in the not-too-distant future computers and the paint boxes will be able to provide art of the kind that this splendid book offers. Until then, if you want a feast for your eyes, beg borrow or steal a copy of 'The Art of the Dragon Lance Saga'. You can't have mine though, I'm keeping it under lock and key. **A.M.**

AD&D FROM SSI

The world of role-playing on computers and in other forms is fast gathering popularity. We have been privileged to take a previous look at two computer games that are tipped to bring a whole new dimension into Commodore computer owners' lives. They will come from SSI, in conjunction with US Gold, who are going to release two computerised variants of TSR's Advanced Dungeons And Dragons fantasy role-playing game.

First to be released is ***"Heroes Of The Lance"***, which will be available on both Commodore formats late September. The game is arcade based, but has many extras that make it highly original. You are in control of a group of six adventurers whose objective is to recover the "Disks of Myskial', which are the only thing that can destroy the final powerful evil being. There is much sword fighting, spell casting and exploring, as well as the more traditional arcade requirements as jumping, running and leaping. The graphics are superb and in my opinion it is destined for the No. 1 spot.

"Pools Of Radiance" will be released on the C64 in mid October, with the Amiga version becoming available about a month later. This is a purist role playing game, which requires, amongst other things, verbal interaction with the game's characters, the completion of various missions, and tactical fighting manoeuvres. You create your party of six characters by choosing each one a special race, then allocating them a character class, which ranges from a pure magician to a hybrid combination of fighter/magician/thief. You can then design them physically from the colour of their hair to their choice of leggings. Once your party is ready they set off on a voyage of adventure and danger. The graphics are good, if a bit small, but the game is guaranteed to keep you occupied for hours.

W.

PUTTING UP SHADES

Shades, Telemap Group's on-line multi-user adventure game, has certainly been in the news a lot recently. Now open to all computer and modem owners via an 0898 number, it also played Cupid when two avid Shadists, who met through the game, recently married in real life.

Intrigued, I decided to take a look at Shades, a game I had heard about but had never played.

Getting onto the game is very easy. You can either dial the open access number 0898 10 0890 to gain access, or play through Micronet or Prestel. It is best to read the guide, called the Book of Damocles, before you enter the game, as well as looking at the glossary for some commands to use.

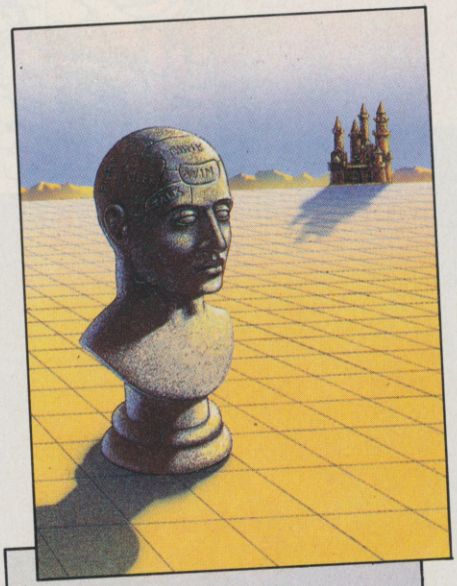
Logging in as a new user you type 'help' and are then given an ID number and asked to make up a password. Having done this you can then decide whether you want your persona to be male or female, and choose your name. Thus equipped you can then enter the world of Shades.

You start playing Shades as a novice, and progress through different levels by increasing your score, which can be done by collecting treasure or killing other players. The official aim of the game is to accumulate enough points to become a wizard, but there's much more to Shades than this.

The game has over a thousand different locations, each of which is described as you wander around. So if you went east after starting the game you would enter 'e' and would see on screen that "you are in a dark tunnel which doesn't quite seem to have reality on its side. To the east it opens onto a large underground cavern containing a comfortable sprawl of a building made of warm stone, while to the west the tunnel darkens into shadow and leads to a strange and timeless land of twilight and magic."

"There is a helper system so that novices can get help from someone higher up the scale"

The descriptions may contain hints about where to go next and will indicate any treasure (not always what it seems)



laying around or the presence of any other characters in the vicinity. There are also 'mobiles', computer-generated characters such as bats, thieves and guards who may attack you without warning. All this, and other players out to kill you as well!

It can be rather daunting going into this fantasy world of caverns and castles, but there is a helper system so that novices can get help from someone higher up the scale until they have got the hang of things.

Role-playing is an important part of the game if you want it to be, with the added advantage that other players do not know what you really look like, so you can play a beautiful maiden even if you're 15 stone and male! And you don't have the bother of organising a meeting every time you want to play an adventure game.

"Shadists seem to be a pretty friendly bunch (apart from the professional killers of course!)"

As for the interactive side of things, Shadists seem to be a pretty friendly bunch (apart from the professional killers of course!) and you can have some very interesting discussions on-line. There's an off-line side to Shades too, with regular parties and 'meets' in pubs. With over 4,000 hours to play a week, Shades is now claimed to be the most popular on-line adventure game in Europe.

The cheapest way to play the game if you get addicted to it is through a Micronet subscription (£20.00 a quarter, and there is a special offer of a free modem to all new annual subscribers at the moment) when it will cost you 2p a minute cheap rate. If you are a Prestel member it costs 6p a minute cheap rate, or can be accessed by dialling 0898 10 0890 (25p a minute cheap rate, 38p peak) if you want to see what it's like without committing yourself – although my bet is that once you start playing, you'll find it hard to stop!

For further information and a free demonstration go to Micronet's free demo database (using a 1200/75 baud modem and viewdata software). Just dial 01-623 8855 and then enter the ID 4444444444 and the password 4444 to gain free access.

Contact: Micronet, Telemap Group, Durrant House, 8 Herbal Hill, London EC1R 5EJ.

SOME SHADES COMMANDS

BLUSH, CRY, DROP (object), FLEE, GIVE (object) TO (player), KILL (player) WITH (weapon), KISS, LAUGH, LOSE (player), SAY (message), SCORE, SHOUT (message), STEAL (object), TELL (player) (message), WHERE (object) or (player), WHO.

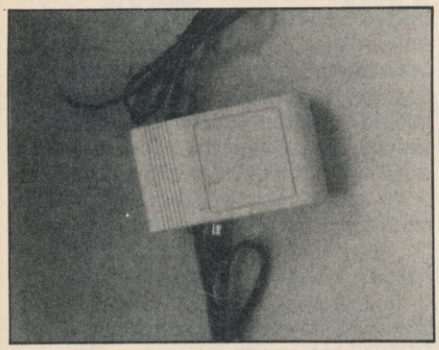
MICRO MATE

Andy Eskelson plugs into the sine qua non of any computer and likes what he finds.

There are many answers to the question, 'What is the most important part of a computer?'. Some say it is the CPU, others say the memory is important, and so on. Well there is ONE part that interacts with all the other components that make up the computer, it is also a very dangerous part if designed wrongly, as it could cause every chip to leap out of the board, or just become a charred mass.

This is the power supply. ALL computers have some sort of power supply, sometimes it is mounted internally, other times it is a separate unit. Commodore use both types, the C64, VIC20, C128, Amiga A500, +4 and C16 have external power units and the Amiga 2000, C128D, PET, and the PC clones have internal power units.

The Commodore C64 power unit has had a reputation of going wrong, and has led to several items of bad press. As the C64 has sold well in excess of 10 million units, the percentage of failed power units is very small, but it should not have happened at all. There are several very basic design faults in the old C64 power unit that cause this unreliability.



The primary design fault is probably the result of cost cutting. This led to the power unit being designed with very little margin for things like loading and local power line voltage variations. Two other problems also contribute to the problem and are to some extent related. A small general purpose integrated circuit is used to convert the raw DC (direct current) from the rectifying circuit into the smooth 5V supply that the computer needs. In the process of conversion, this integrated circuit gets hot. This is quite normal and so something must be done to remove this heat. The method used is to mount the integrated circuit onto a HEATSINK. It sounds complex but all it is is a piece of metal that will conduct the heat away over a large surface area and so dissipate the heat. The power supply that Commodore use only had a very small strip of metal, and the method of mounting was by a self-tapping screw through the mounting tag on the integrated circuit. It is also normal to use a heat conducting paste between the two surfaces to ensure a good thermal contact. It seems that the Commodore unit did not use this.

> ***"The printed circuit has been designed so that the transformer mounts directly onto the printed circuit board"***

The last problem was that Commodore sealed the power unit with a plastic resin (normally referred to as a potting compound). This makes for a very robust unit, and also makes them virtually unrepairable! But the one thing that the plastic is not good at is conducting heat! So the effectiveness of the heatsink in the power unit is reduced dramatically. All of these problems are very easily solved and one of the answers is the Micro Mate.

The Micro Mate is a replacement power supply for the C64 and is a very neat, wedged-shaped unit, 90mm × 150mm × 70mm sloping to 45mm at the front edge. The mains lead exit is on the right hand side at the rear and the lead to the computer is on the left hand side rear.

Internally the Micro Mate is a good piece of design. There has been a cost cutting exercise, but it has been done carefully and has in no way degraded the unit. The all important transformer is a very standard type, and its size indicates that it is rated somewhere between 20 and 25VA. A small custom designed printed circuit board is used to mount the remaining components and there are no leads from the transformer to the printed circuit. Instead the printed circuit has been designed so that the transformer mounts directly onto the printed circuit board. The copper tracks on the board are very thick, about 4mm and are fully trimmed so there will be no problems of volt drops due to thin tracks. The soldering was of a very high standard and should give no problems at all.

The transformer has two outputs: the first is a raw 9Vac, and that is fed directly to the computer lead. The other output is rectified with a rugged bridge rectifier, and is smoothed by two 4700 microfarad capacitors, making a total of 9400 microfarads. This is ample smoothing for this unit. However this smooth DC is still far too high a voltage to be fed to the computer, it MUST be regulated down to 5V. A standard integrated circuit (78S05) is used for this. That integrated circuit has a maximum rating of 2 Amps and so has a good safety margin. The output from this integrated circuit is finally smoothed by a small 10 microfarad capacitor just to remove any last trace of ripple before it is fed to the computer lead.

As the regulator integrated circuit functions in a similar manner to the one used in the Commodore units (the Commodore units are only related to one Amp) it too must be mounted on a heatsink. The heatsink used is, like the Commodore unit, a strip of metal bent into a U shape. The difference is the size, the Micro Mate's heatsink is massive compared to the Commodore's heatsink. It has a total length of approx. 150mm and is 30mm high and 2.5mm thick. Now comes the only two grumbles that I have about the unit. The regulator integrated circuit is screwed to the heatsink with a self-tapping screw, and like the Commodore unit there is no heatsink compound between the integrated circuit and the heatsink.

Finally though there is no 'potting compound' so there is a good airflow in the unit which helps no end. The case has a few slots cut in the base presumably for ventilation, but none in the top, which strikes me as a little strange, seeing as hot air rises (well so I was told at school, and I don't think anyone has changed that law!).

The Micro Mate is rated at 5V at 1.5 Amps and 9Vac at 1 Amp and that is at least 50% up on the Commodore unit. If your Commodore unit ever goes up in smoke, the Micro Mate would be a good choice for a replacement.

A.E.

Price: £29.95
Contact: Microbase Products, Units 6-9, Plessey Road Workshops, Blyth, Northumberland NE24 9XX. Tel: 0670 364256.

QUICK BROWN BOX

Peter McDonald doesn't jump over a lazy dog but finds a 64K memory that stops your programs disappearing

Veterans of the early C64 days will recall a w.p. program called 'The Quick Brown Fox'. It was one of the first available for use with cassettes.

When I received this package for review I wondered if I had been sent an updated version of that venerable word-processor. But no; this item is called 'The Quick Brown *Box*' and it is produced by Brown Boxes Inc, Electronic Computer Attachments, of 26 Concord Road, Bedford, MA 01730. And a computer attachment is precisely what Quick Brown Box ('QBB') is.

QBB is a cartridge which plugs into the expansion port of your 64 or 128. It behaves as part of your computer's normal memory and you can store 32 or 64K of Basic and machine language programs in it, but when you turn off the computer, your programms do not disappear.

You can choose whether to buy a 32K or a 64K cartridge. The one for review was a 64K model.

Many readers will be unfamiliar with this concept. Some may never have used any sort of cartridge. They may wonder why QBB is such a big deal when one can save programs to disk, and get them to autoboot, simply by switching on the computer. The manuals says your programs are 'stored unchanged, unless you want to change them, for as long as 10 years,' the reaction may be 'So what? I can do all that on disk'.

A little story. When I acquired my C64 I bought a popular word-procesor on disk. It seemed to take on age to load; the 1541 drive took the blame. Then they produced a cartridge version. You could leave it permanently in the expansion port because if you ever wanted to revert to basic you could easily do so within the w.p. options. With the cartridge installed I knew that as soon as I switched on the C64, I was into word-processing. There was no delay whilst the program loaded. As the manual says of the QBB: 'memory contents are instantaneously available when you turn on your computer.' So QBB combines extra memory with instant availability; to that extent it resembles my w.p. cartridge. This is an immense advantage. I now have the 128 version of the w.p. program. It is only available on disk; compared with the (C64) cartridge it seems to take an eternity to load, even on the (much quicker) 1571 drive.

'Any basic or machine language program which is not protected can be loaded into QBB'

But speed is not the QBB's only advantage. The w.p. cartridge was not much use to you if you became a convert to a different word-processing system. QBB, however, can be used over and over again. If you 'save' into it a program of which you subsequently tire, you can always scratch unwanted items, and re-use the memory thereby released.

The cartridge comes contained in an anti-static bag; with a 24-page manual in A-5 size, and a sheet headed 'Read this first!' containing very sensible cautions against dangers which might otherwise not be obvious. (The manual points them out. But how many of us read manuals before experimenting?).

The cartridge can be used either in 64, or 128, mode but these are not interchangeable; the Managers differ for each so you cannot have both 64 and 128 programs in QBB at the same time. The procedures vary slightly, and it would complicte matters unduly if I tried to cover both modes here. For convenience I intend to confine myself to the 64 mode, as I can run QBB on my SX64, whilst writing this on a 128D.

The cartridge is not just a blank electronic surface, waiting for you to save your programs to it. Certain facilities are already on it when it arrives – items you may or may not need immediately. They, of course, occupy memory. It is therefore sensible to scratch those items you do not require, thus leaving the maximum amount of memory for your own programs.

It would be silly to scratch facilities and then find, in a few weeks, that you require them after all. Your first task, then, is to save them from the cartridge to disk as a back-up. And that tells us something more about QBB: you can save from it, as well as to it. Provided you have the facilities stored on disk, of course, you can re-save them to the QBB cartridge if you ever require them in the future. So you are free in the meantime to delete unwanted items and maximise available memory.

The 'Read This First' sheet tells you all you need to know about the preliminaries. For your back-up you need a formatted disk with at least 200 free blocks available. The cartridge has a 64/128 switch on it; you set it to 64 and, with the computer switched off, insert the cartridge. Switching on the power brings the QBB Directory to the screen. There is now a procedure for using a checksum to ensure before you start that everything which should be on the cartridge is on it. A figure appears on the screen and should coincide with one printed on the cartridge.

You then follow step-by-step instructions (they are quite clear) to save the various vital facilities to your back-up disk. This can be done easily in 10 minutes and does not need to be repeated because you can copy new back-up disks from the first.

You are then left with the 'Manager' menu on screen. The options are selectable by typing in the initial letters of the options. These are: View QBB Directory: Load new program; Delete program: Initialize QBB for loading; Save QBB to disk; Autostart; Memory Used; Read disk directory; Partition QBB; Exit.

To load a program from disk into the cartridge, you insert the disk and press "L". You are then asked for the program name (i.e. the one under which it appears in the disk directory.) You type this in and press RETURN. The words 'READING PROGRAM' appear on screen. This can take a little time, depending on the length of the program. Indeed the second one I tried to load produced the legend 'Sorry! Program too long!', so I had to try another.

Screen prompts ask for a two-letter identification (but will not accept reserved words like OR or TO). This is for quick loading. You are also asked for a six-letter title. This entered, the directory appears on screen with the new program listed under its two-letter and six-letter titles. From this you can get back to the Manager Menu.

'At any time, by pressing QBB's RESET button, you can bring the QBB directory (which acts as a menu) on to the screen'

So far, so good. You can switch off the cartridge in effect by selecting 'E' for Exit, followed by CLR which clears the screen. This frees the computer for normal work. But at any time, by pressing QBB's RESET button, you can bring the QBB directory (which acts as a menu) on to the screen. (It also appears automatically when you switch on the computer with the QBB cartridge in the slot.)

To load a program from QBB into your computer, all you need do is type '*', followed by the two-letter identification (e.g. '*B'), and then press RETURN. Almost instantly you are in to the program . . . no need to type RUN for instance. When you want to be out of that program, you just press the RESET button which restored the directory to the screen.

What if you then want to Load a new program into QBB? This cannot be done directly from the directory; it has to be done from the Manager. So you type '*MR' (which the directory reminds you is the abbreviation for the 64 manager), press RETURN, and the Manager Menu appears on screen.

Until delted (a simple process) a program will remain in QBB for the cartridge's life, i.e. 10 years. If you want to erase all the items and start again, you simply choose 'initialise' from the menu. This wipes out everything from the cartridge and you can then save to it from your back-up disk whichever facilites you require, and start again.

I have deliberately given a blow-by-blow account because it is the best way of enabling you to see the procedures are easy to follow. I have tested it with several programs, including a commercial item which is non-protected, and a 'brainstorm' and two graphics programs I copied long ago from an American magazine. Everything worked smoothly and, oh! so swiftly!

Those are the core features. Lack of space prevents much more detail. But there are several additional 'goodies' (e.g. RAM Disk; linking programs; Supermon . . . installed in the cartridge . . . for 64 users). In fact, the whizz-kids can have a beano with QBB. It can be used with expansion RAM and other cartridges. It can be programmed (by those who have the skill and find its Manager insufficiently sophisticated); any basic or machine language program which is not protected can be loaded into QBB. But most purchasers will be primarily concerned with the standard features I have described: saving programs to the cartridge, and running them, instantly, by making four key-strokes.

Should you buy it? I had seen similar items advertised and did not feel particularly drawn towards them, minaly because I did not fully grasp their potentialities. I am very grateful to have been given an opportunity of testing QBB and I can see that it might lure me into further experiments. Of course, many will want it, just for the pleasure of playing with it. I am sure they will not be disappointed. What is more, I would bet that eventually it gets loaded with programs and used as a permanent feature. Those who have a selection of programs which would make a sort of 'sidekick' should buy QBB. It is wonderful to be able to leave one program and get back to the menu (directory) simply by pressing the RESET button once.

A pleasure to use, and clearly described in an adequate manual, QBB could become a useful addition to any system.

P.M.

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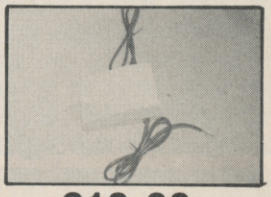

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COMPUTER VIRUSES

Price Waterhouse, the world accountancy and consultancy firm, are taking computer viruses so seriously that they have been examining every one they can find. They have recently issued a report on viruses which CCI thought would interest all CBM owners.

Nobody is immune from computer viruses. So far they have only caused disruption, loss of revenues and of reputation, but how long until this menace causes something far worse?

What is a Computer Virus?

A computer virus is an unauthorised program that gets into a computer system, causes damage to other programs and data and reproduces itself thus compounding the damage.

Why is it so dangerous?

Because it can bring systems down, wipe out years of memory or research or even trigger computer-dependent actions – a worrying thought for many government departments, especially in defence or for city firms with computer-triggered dealing facilities.

Examples of problems already created by viruses will be found later.

How do they get into the systems?

They are quite often downloaded unknowingly by users from "Bulletin Boards" (a kind of program "swap-shop" accessed through a modem and down the telephone line).

A virus can be built in to an innocent looking program or utility and placed on a bulletin board.

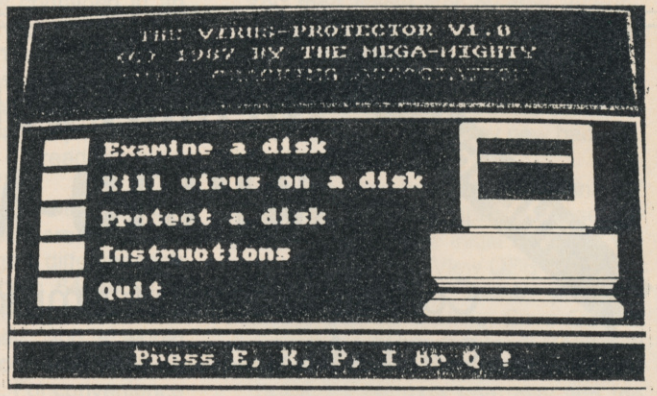
PC users equipped with modems will then unwittingly download what might look like a useful program or game not realising that the computer virus will infect their system as soon as it is loaded, often without any indication or notice.

Another way of spreading the virus is through the exchange of diskettes – a common practice in computer clubs.

Computer viruses tend to be targeted at IBM PCs or clones, as these are amongst the most popular computers available. There is the obvious concern that computer viruses will soon spread to a large number of commercial, industrial and even military applications.

The well publicised case of a 13 year old boy hacking his way into NASA's computer some years ago, could become insignificant compared to an uncontrollable and unchasable computer virus springing to light within a military computer system.

Companies are particularly vulnerable to disaffected or sacked computer employees.



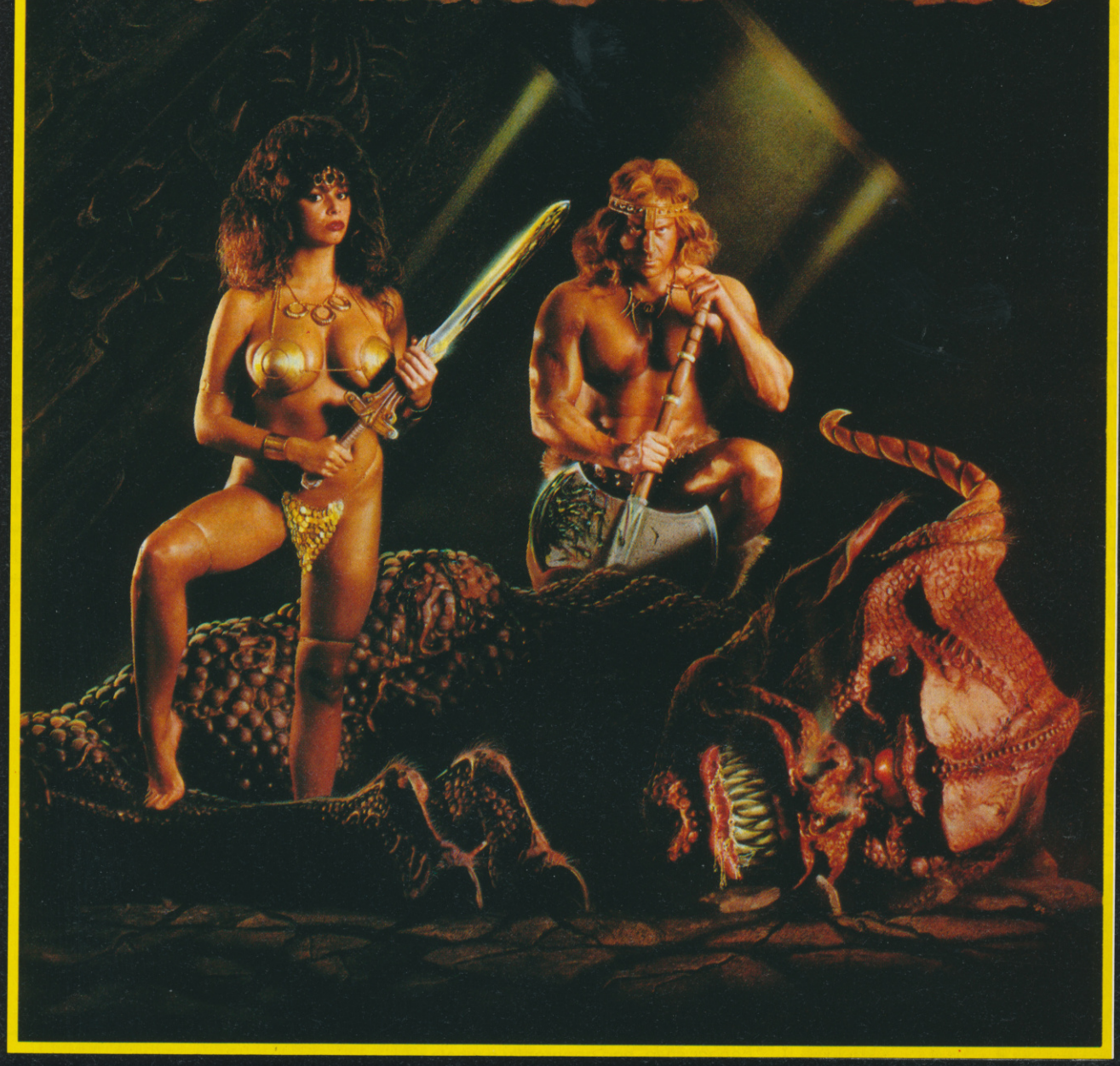
What can be done to stop them?

Because computer viruses come in so many different forms it is difficult to give guidelines on how to protect against attack by such programs or to identify a particular "vaccine" program which will always be useful. However, certain fundamental "common sense" rules can be applied as a defence. These include disabling the hardware, scrutinising the software, monitoring and protecting programs and issuing personnel guidelines.

continued on page 105

BARBARIAN·II

THE DUNGEON OF DRAX



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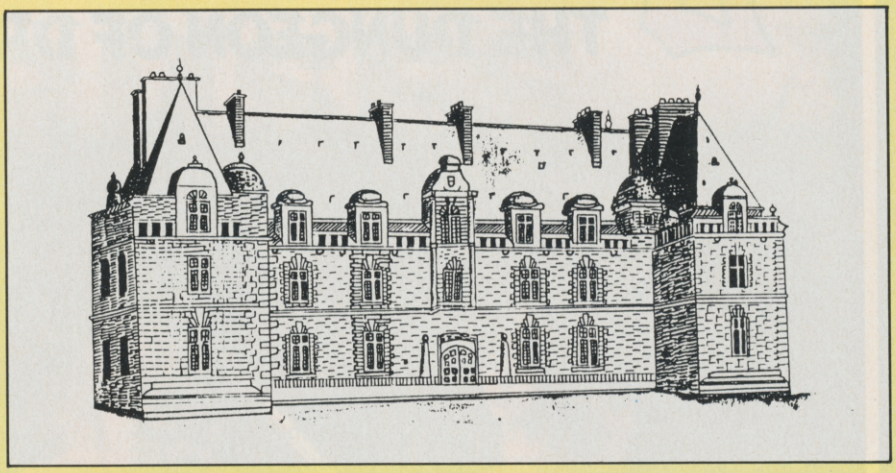
PALACE

CHATEAU'ED DREAMS

Anthony Mael enters the soignée world of software à la française



There is no denying it . . . the French have un certain style. Visit an American software company and you enter the hi-tech trading estates of California's Silicon Valley. Seek out a British developer and you may end up in the suburban respectability of London's Muswell Hill

But get an invitation to probably the most important software house in France and you are immersed in a different and very much more elegant environment, nothing less, in fact, than a Chateau – a castle, French style.

The company enjoying these gracious surroundings – the Chateau has a mere 700 acres as its grounds – is UBISOFT. It would not be surprising if you ask UBI-who? Even UBISOFT admit they have not been too well presented to any computer audience outside France, though they have there established a reputation for quality games that has given them a sizeable share of the market. They have chosen to confine their releases to their home country until they had something that stood up to international standards. Now they have chosen to go public with some interesting games they have under development partly because they are so confident that they are onto something good but also because they have just moved into what must be the most impressive context in which any computer games are being created – the aforementioned Chateau.

Chateau Gree de Callac – to give it its full name – is in Brittany and now houses some 20 programmers and a mass of computer equipment – Amigas, PCs, 64s and so on. This all looks rather incongruous in the aristocratic halls of the vast early nineteenth-century building. There are antlers, wild boars' heads and ancient paintings still on the walls. Beneath them an international, though largely French, pack of programmers beaver away at the current seven titles that UBISOFT is promising to launch this year.

They are certainly creating a wide variety of interesting games. Everything from a medieval arcade adventure to an improved Gauntlet clone. All it is claimed to be launched on the Amiga, probably before the end of 1988. With US distribution through Epyx, they look to gain a big audience across the Atlantic.

Their arcade adventure certainly looks impressive. Called Iron Lord, it combines many of the best things that made Defender of the Crown and Faery Tale so successful. If that does not make it terrifically original, it will not lessen the enjoyment of those who see its excellent graphics – all animated galloping horses and evil-looking inn companions with plenty of archery, arm-wrestling, sword-play and even a visit to the local brothel – all in the quest to overcome a treacherous uncle.

Another very interesting game under development is Final Command – a space drama which has what seems at this stage a very strong scenario that requires you to seek out some vital lost data banks and fight for your life while doing so. Here, too, the graphics are impressive with a sense of the James Bond lots-of-activity-going-on-in-a-huge-hangar style, and apparently a whole city to search.

In another style altogether, UBISOFT are creating Skateball – a very slick, fast-moving sports simulation that has big-muscled, enlarged sprites speeding over the ice with a ball, not a puck, to be struck. On the Amiga, it had a very exciting feel and appearance.

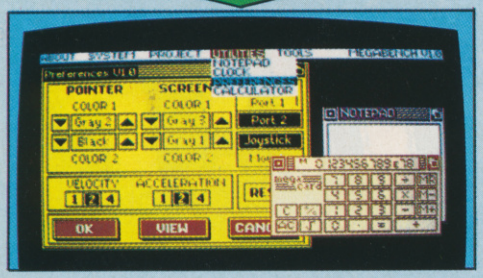
The 'incarcerated' programmers were also working on a nice Garrison-type dungeons eat 'em up with fire-breathing dragons as one obstacle to overcome and a horizontal scroller that has the working title of "Dracula" – a name which might not please CRL too much. Watch out for "Bats" too, which has high quality graphics and gameplay.

UBISOFT are associated with Guillemot, France's largest distribution organisation, so they have a very strong base to build on. And talking of buildings, the programmers, from all over France, initially complained because the first night there they were all so spooked after telling each other ghost stories that they

did not want to take the remote rooms reserved for them up on the third floor. They have got used to the place now. They are reported to work all night and sleep all day so they do not get to see much of the countryside around. They don't seem to care though. What other programmers, with a free ticket home each month wherever they come from, can casually say "Drop in and take a look at the Amiga game I'm working on – out at my Chateau . . ."? Not too many, even in France . . .

A.M.

KEEP IT SIMPLE!



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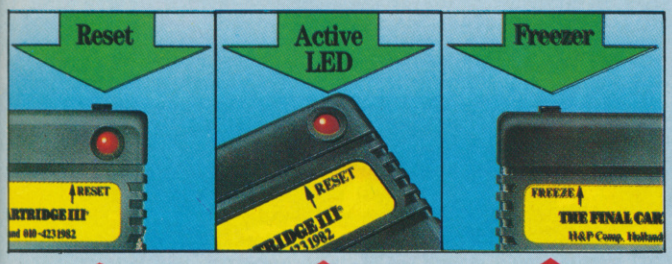

WINDOWS

THE FINAL CARTRIDGE III

The high-resolution bit mapped windows are selected from a menu bar. An unlimited number of windows can be open on the screen at the time. The windows can be freely moved on the screen.

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Selects: mouse port, joystick port, mouse speed, screen colours, pointer colours, keyboard click, keyboard repeat.

CALCULATOR
Complete simulation of a LCD-calculator. Input either with mouse, joystick or keyboard. The numeric key-pad of the C128 can be used in C64-mode.

NOTE PAD
Easy to use wordprocessor with proportional characters enables you to store and print small notes, letters, etc.

DIRECTORY WINDOWS
Enables you to open directories from different disks and drives, sort and print directories.

DISK WINDOWS
Load, Run, Rename, Validate, Scratch, Initialize, Fast format disks.

TAPE WINDOW
Activates fast and normal modes.

PRINTER WINDOWS
Select different printers, such as Commodore serial, Centronics, RS 232, Colour printers.

REQUESTER WINDOWS

DISC BASED USER WINDOWS

CLOCK
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FREEZER MENU

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● Kills sprite to sprite ● and/or sprite to background collision ● Can be started at any point in your game.

AUTO FIRE
● Transforms a normal joystick to an advanced auto fire engine.

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● Never blow up your computer again by changing joystick ports while the C64 is running.

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Comfortable ML monitor.
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PULL DOWN MENU

THE FINAL CARTRIDGE III

Almost all commands and functions that are not activated by windows can be selected from a menu bar, which appears on top of the screen after pressing the fire button, either in Basic or from the freezer. The following Basic Toolkit and keyboard extra's are included:

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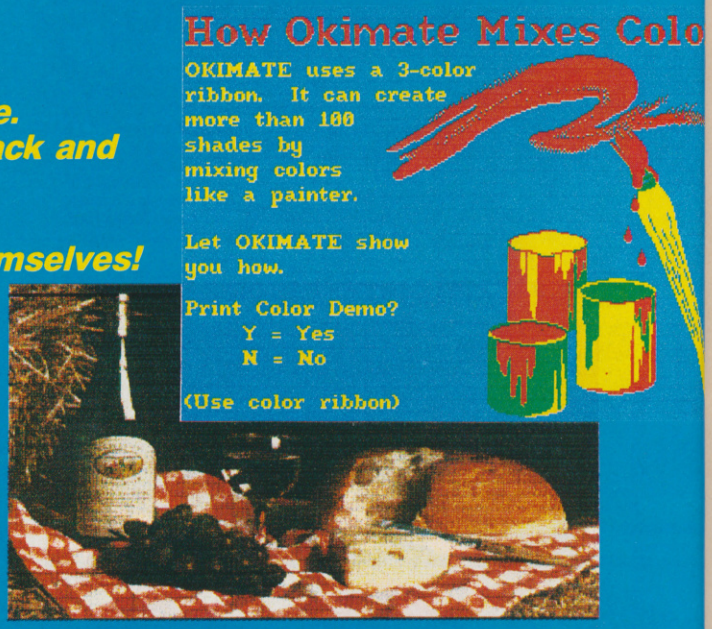

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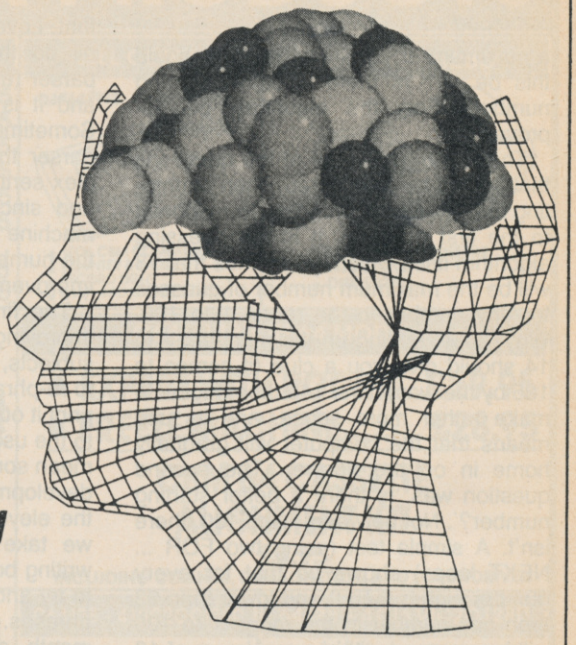
Time to Think

Artificial Intelligence and Commodore Computers



Peter Gerrard takes no responsibility for your 64 making you emotionally disturbed. He is merely continuing his series on programming in Artificial Intelligence

Last month's introduction to the world of artificial intelligence (which shall, as ever, be known as A.I. from now on) centred itself around defining a few terms and presenting the first little listing of a program that will grow and grow as this series continues. It is a program of the type commonly referred to as Eliza, which stimulates a discussion between a psychiatrist and a patient, the computer playing the part of the psychiatrist.

As the series continues and the program lengthens, the computer will seem to become ever more intelligent as it gauges the response of the human tapping away at the keyboard and phrases its replies and questions accordingly. Of course, it will never replace a properly trained psychiatrist, but we can make some reasonable progress and fool a number of people into thinking that the computer, this artificial impersonation of a human brain, is thinking intelligently.

But before we get down to looking at this month's extension to the program, here is something for you to think about. Take a look at the listing headed Simple Guessing Game.

Simple guessing game

```
10 REM guessing game
20 x=RND(-TI)
30 PRINT "Think of a number between 1 an
d 100."
40 PRINT:PRINT"Press SPACE when ready."
50 GET a$:IF a$<>" " THEN 50
60 guess=0:diff=0
70 a=INT(RND(1)*100+1)
80 PRINT:PRINT"Is it";a;"? ";
90 GET a$:IF a$="" THEN 90
100 IF a$="y" THEN 190
110 IF a$<>"n" THEN 90
120 PRINT:PRINT"Is my guess higher or lo
wer (h or l) ? ";
130 guess=guess+1
140 diff=diff+1:IF diff>13 THEN diff=13
150 GET a$:IF a$="" THEN 150
160 IF a$<>"h" AND a$<>"l" THEN 150
170 PRINT:IF a$="h" THEN a=a-(14-diff):G
OTO 80
180 a=a+(14-diff):GOTO 80
190 PRINT:PRINT:PRINT"I got it in";guess
;"guesses!":PRINT:GOTO 30
```

Simple Guessing Game

This short, (19 line) program, shows a very simple example of a computer learning something. In this instance, the user chooses a number in the range 1 to 100 and the computer has to identify that particular number in as few guesses as possible. As you can see from line 70, the computer chooses a random number as its initial starting point and then, by using the algorithm in lines 140, 170 and 180, homes in on the desired number.

Provided that the user of the program (i.e. you!) does not cheat, the computer will always manage to guess the chosen number eventually. The program is not error protected, by the way, so that the computer will not know if you do cheat, nor will it always stay within the boundaries of 1 and 100: it sometimes goes beyond those limits in its quest for the chosen number. Those are additions that you may care to put in yourself.

The important thing to think about, though, is how it works. As I said, it is only a simple example of a computer learning something from information presented to it, but it teaches us a number of things about intelligent thinking. What is interesting is the line 70 mentioned earlier. Changing that line so that it reads 70 a=50 ensures that the computer will always guess your chosen number within

cont. on next page

continued

a maximum of 13 guesses. Why should this be so? Is there a better starting number? Can the algorithm be improved?

These are just some of the questions that should be considered when attempting to write an A.I. program. In response to the first question, it is the guessing algorithm itself which determines that 13 will be the maximum number of guesses for any number in the range 1 to 100. Why? Well, adding up the numbers 1 to 14 should give you a clue (it comes to 105 by the way). Line 140 then begins to make rather more sense, and its use means that the computer will gradually home in on the answer. The second question was 'Is there a better starting number?'. Not between 1 and 100, there isn't. A simple test (using two FOR ... NEXT loops) shows us that for every number higher than 8 and lower than 93 then any number in the range 1 to 100 will be guessed within a maximum of 13 guesses. Why? That goes back to the algorithm again.

'Changing that line so that it reads 70 a=50 ensures that the computer will always guess your chosen number within a maximum of 13 guesses.'

Finally, the third question was 'Can the algorithm be improved?' I am not doing everything for you! Seriously, try and think of a better way of guessing a number between 1 and 100, where the computer can always get that number in less than 13 guesses.

And if you're thinking about the problem, then congratulations! You have just entered the programming field of A.I.

But back to our resident psychiatrist, and let's ponder a while on some of the ways in which the simple program presented in the August 1988 issue of ***CCI*** could be improved.

The input routine shall remain the same throughout, just as it did for your series on adventure games. There is little to be gained by changing it for a machine code version, since people can only type at a certain speed and the Basic routine can cope quite happily with that. There might be an argument for changing the next part of the program to machine code, though.

This is the part that takes what the user has typed in and tries to analyse it as best it can. Great research is going on into this area of programming, you have only to look at the efforts of the various adventure software houses to realise that. Level 9, Magnetic Scrolls, Infocom, all do their best to produce a better parser (as it is known) than each other, and it is hard to say who is winning. Sometimes, however, a sophisticated parser that will handle extremely complex sentences overlooks the mundane, and since this is not meant to be a machine code tutorial we shall stick to the humble limits of Basic and see what improvements we can make using that.

The first, and most obvious, way of improving things is to check for specialist subjects, so that we are not just tending to re-phrase what has been typed in and print it out again in the form of a question to the user. By specialist subjects I don't mean something out of Mastermind ('the development of the English Language in the eleventh century A.D.'), but instead we take a leaf out of the adventure writing book and sift through a sentence to try and find a number of key words or phrases. We will do that very simply this month, and extend it somewhat as the months go by, so be prepared to be making constant changes to the original and subsequent programs as we go along.

Just as the popular image of a psychiatrist will pick a word out of a seemingly innocent sentence and switch a discussion in a particular direction, so must our computer pshychiatrist. And since it seems to be one of the most recurring subjects whenever a psychiatrist is represented on television or on films, we shall have a look at those wonderful things, mothers.

And by the way, even when this program is finished and we have learnt rather more about A.I. than we know now, do not be tempted to take the computer's responses too seriously. No matter how artificially intelligent it may eventually seem to be, it is not the real thing! A real psychiatrist can see you, for one thing, the computer obviously cannot, and that is just one of the many major differences. So if the computer ends up in four or five months time by telling you that you've got a deep-fixed hatred for all owners of Amstrad computers, don't take it too seriously. I refuse to be responsible for the consequences! It is only meant to be a bit of fun.

```
Patient Program Additions/Alterations

2 DIM s$(50)

13 IF LEFT$(cm$,7)="because" THEN cm$=MI
D$(cm$,9)
14 FOR i=1 TO LEN(cm$):IF MID$(cm$,i,6)=
"mother" OR flag=1 THEN 300
15 NEXT
16 z$=cm$

150 PRINT:PRINT"Why do you think that":P
RINT cm$;"?":GOTO 10

300 REM patient talking about mother
305 IF flag=0 THEN PRINT:PRINT"Good, now
 we're getting somewhere."
306 IF flag=0 THEN PRINT:PRINT"Tell me m
ore!":flag=1:GOTO 10
310 j=0:a=0:FOR i=1 TO LEN(cm$)
320 IF MID$(cm$,i,1)=" " THEN a=a+1:s$(a
)=MID$(cm$,j+1,i-1-j):j=i
330 NEXT
335 FOR i=LEN(cm$) TO 1 STEP -1
336 IF MID$(cm$,i,1)=" " THEN a=a+1:s$(a
)=MID$(cm$,i+1):GOTO 340
337 NEXT
340 FOR i=1 TO a
350 IF s$(i)="i" THEN s$(i)="you"
352 IF s$(i)="am" THEN s$(i)="are"
353 IF s$(i)="we" THEN s$(i)="you"
354 IF s$(i)="my" THEN s$(i)="your"
355 IF s$(i)="i'd" THEN s$(i)="you'd"
356 IF s$(i)="me" THEN s$(i)="you"
357 IF s$(i)="i'm" THEN s$(i)="you're"
```

continued on page 32

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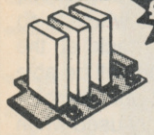

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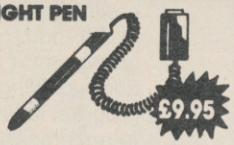

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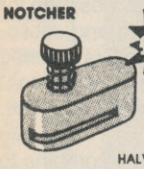

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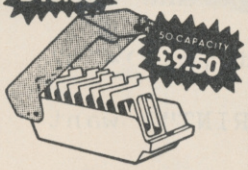

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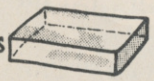

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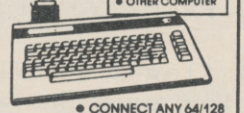

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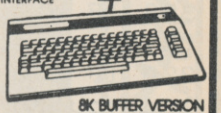

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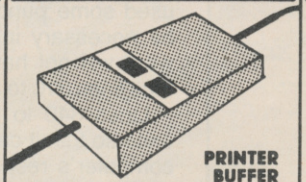

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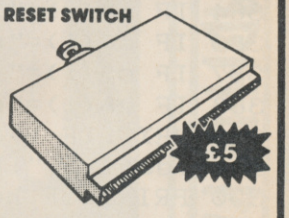

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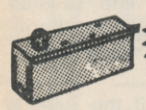

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VISA

Time to Think

continued from page 30

```
358 NEXT
360 b=0:FOR i=1 TO a
362 IF s$(i)="not" THEN b=b+1
364 IF s$(i)="talk" OR s$(i)="mention" O
R s$(i)="discuss" THEN b=b+1
366 NEXT
368 IF b>1 THEN PRINT:PRINT"You're hidin
g something!":flag=0:here=0:GOTO 10
370 b=0:FOR i=1 TO a:IF s$(i)="she" THEN
 b=b+1
372 z=LEN(s$(i)):IF MID$(s$(i),z,1)="s"
THEN b=b+1
374 NEXT:IF b>1 THEN PRINT:PRINT"I want
to learn about you!":GOTO 10
375 b=0:FOR i=1 TO a:IF s$(i)="hate" OR
s$(i)="detest" THEN b=b+1
376 IF s$(i)="love" OR s$(i)="adore" THE
N b=b+1
377 NEXT:IF b>0 THEN PRINT:PRINT"That's
a strong emotion."
378 IF b>0 THEN PRINT"We'll discuss some
thing else."
379 IF b>0 THEN flag=0:PRINT:PRINT"I'm g
lad you're opening up, though.":GOTO 10
380 b=0:FOR i=1 TO a
382 IF s$(i)="you" THEN b=b+1
384 IF s$(i)="like" THEN b=b+1
386 IF s$(i)="nice" THEN b=b+1
387 IF s$(i)="it's" THEN b=b+1
388 IF s$(i)="good" THEN b=b+1
389 NEXT:IF b>1 THEN PRINT:PRINT"That's
interesting.":PRINT:GOTO 392
390 PRINT:IF here=0 THEN here=1:PRINT "I
 see."
391 PRINT:FOR i=1 TO a-1:PRINT s$(i);" "
;:NEXT:PRINT s$(a)".":PRINT
392 PRINT "Tell me more.":GOTO 10
```

The illustration of the sample conversation with the computer shows how the program now changes direction when the user types in the word 'mother'. The preceding exchanges, incidentally, were something like "Why do you refuse to answer my questions?" – "Because that's the kind of guy I am" – "Why do you think that that's the kind of guy you are?" – and then we had the conversation as shown.

The first change that we must make to the program is the addition of line 2 and the arrival of the array s$. This will be used to hold all the words in the sentence typed in by the user, assuming that they don't type in more than 50. That would be about seven or eight lines of text on a 40 column screen, so not many people would. However, you might care to insert a check in line 320, which we'll be coming to later, just in case.

Line 13 you have already seen, but at a different point in the program. It has been moved up here now so that the intrusion of the word 'because' does not interfere with the 'mother' routine. Lines 14 and 15 then check to see if the word 'mother' is included in the sentence typed in by the user. If it has, then we go off to our new routine commencing at line 300. The variable 'flag' is set by this routine, so that if we are already talking about mother we go to line 300 without having to scan through the whole sentence.

Line 16 is another old friend, although it used go be somewhere else, and the final modification to the existing program is in line 150. Again, we have seen this line before, but now it has been slightly changed to as to make screen output look that little bit tidier.

And now for the new routine!

Line 300 is rather self-explanatory, and covers the whole of this routine, which stretches from line 300 to line 392. Other routines in later months will fit in lines 400 to 490-odd, 500 to 590-odd, and so on, giving a nice structure to the whole thing and enabling us to look back at the program in later months and still be able to remember how it was all put together.

Lines 305 and 306 are only used when this routine is called up for the first time, and apart from setting the 'flag' variable so that we know to skip past these two lines next time (and come to line 300 from line 14) they print up a message for the user to read. The second and subsequent times that this routine is entered this message will be ignored, and program flow will continue with the next line, which is line 310.

Lines 310, 320 and 330 all combine to do one job, and that job is to split up the sentence typed in by the user into its component words. The variable 'j' keeps track of where we are in the current sentence, while the variable 'a' keeps an eye on the number of words found. This is where you might care to put a check, so that 'a' doesn't exceed 50 and we run out of space in the array s$. All being well, the correct words are put in the correct place in the array.

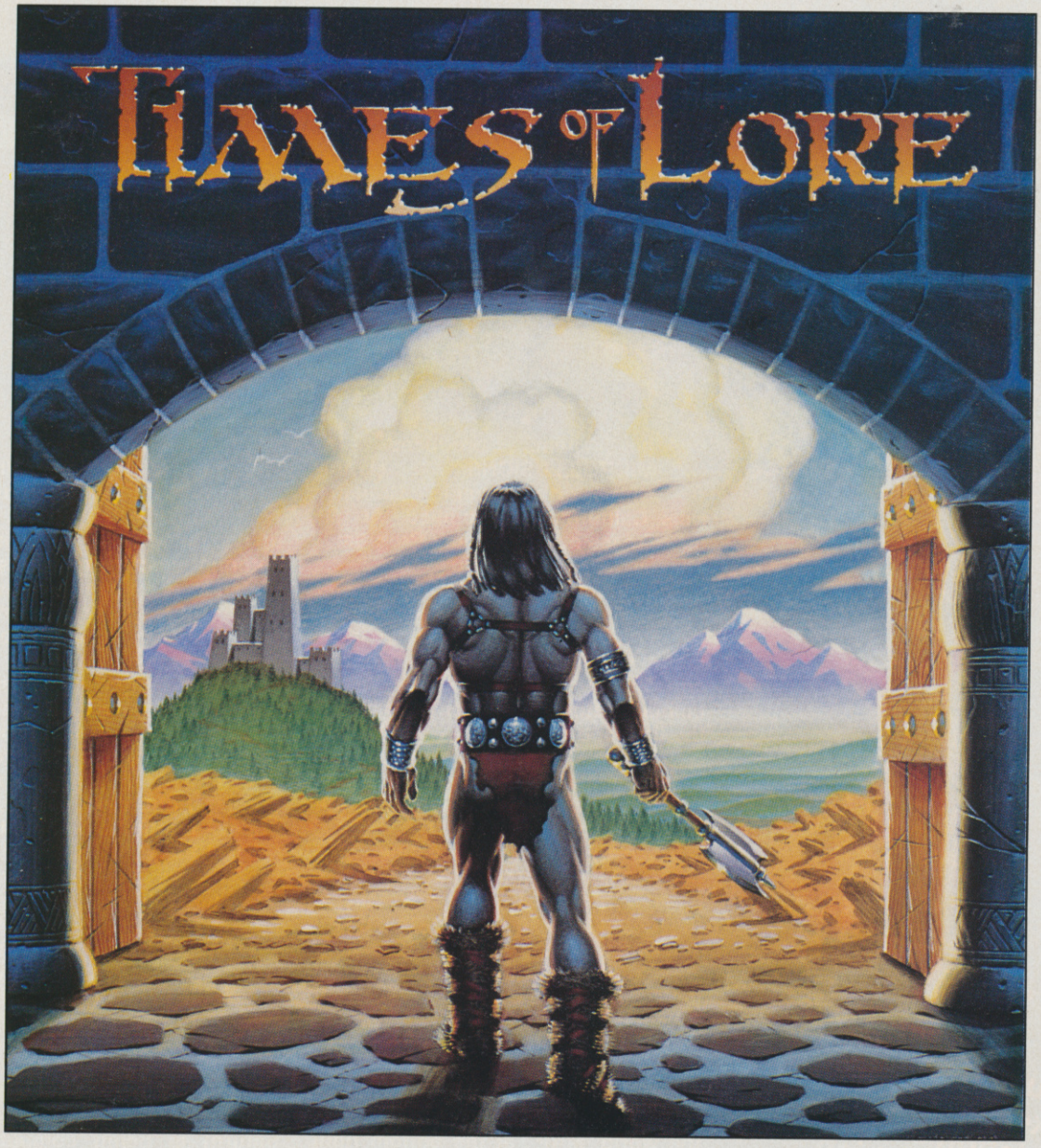
Lines 335 to 337 then find the last word in the sentence by working back from the end. This is partly in case the user has used some punctuation, but would also be necessary in any event, as the last word will not have a space after it and thus lines 310 to 330 would not pick it up.

Lines 340 to 358 translate the sentence so that it can be used as part of the computer's response if necessary. This invovles changing words like 'i', 'me', and so on. Thus a sentence such as "my mother doesn't like me" would become "your mother doesn't like you" and could be used by the computer as part of the next question for the user. You might care to put some more words in there as well, to both enhance and personalise your program.

Lines 360 to 368 are a simple check on whether or not the user has typed in something like "I'd rather not talk about that". You could also add a line 363, to read 363 IF s$(i)="don't" THEN b=b+1, which would then enable the program to pick up things like "I don't want to talk about it" as well. If the computer thinks that the user is trying to hide something, then line 368 tells the user this and goes off to line 10 after re-setting the variables 'flag' and 'here', 'flag' we've already seen, 'here' comes into play later on.

Lines 370 to 374 see if the user is talking about the mother rather than about themselves, and again this sort of thing could be considerably enhanced to pick up more than something like "she likes flowers", perhaps by having a line

continued on page 54



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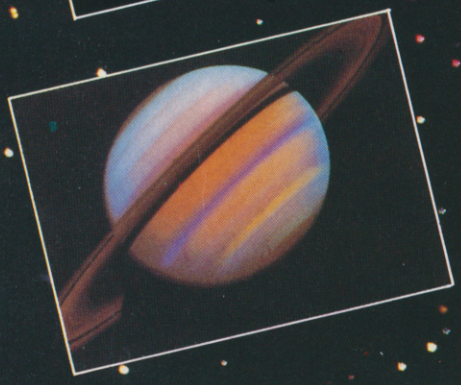
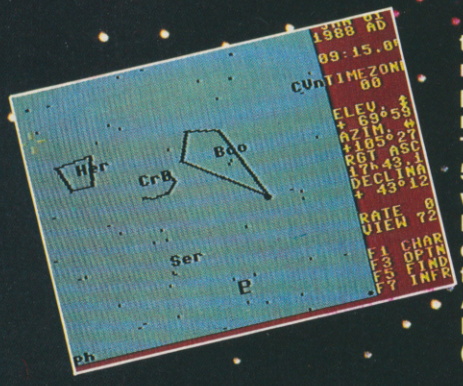
SKY TRA



"You can use it to go back in time and see a simulation of the solar eclipse which Thucydides saw in Athens on 3rd August 431 BC!"



This item, produced by MICROILLUSIONS (17408 Chatsworth Street, Granada Hills, California), is sub-titled "An all-encompassing Astronomy Program". That is a fair description.

The version received for review was the 64/128 version (which really means a 64 version you can use in 64 mode on your 128). The package consists of an attractive, multi-coloured stiff-card folder, bearing on the front a picture of heavenly bodies of astronomical, rather than pulchritudinous, nature. Inside this is the program disk, handsome 60-page illustrated manual.

When the loading is completed (it takes a few minutes) the screen is filled with a chart of the night-sky at the default setting, i.e. 1st January 1988 at Washington D.C.

Right. So we want to see what it will look like from London on 15th September, 1988. To do this, we must be able to tell the computer the latitude and longitude of London. If we do not have that information at our finger-tips, we simply press 'f1.' until the world 'MAP', at the bottom right hand corner of the screen, is highlighted (i.e. is in reverse field). Then press RETURN. There is a pause whilst a map of the world (Mercator style) is loaded. This has a cross at the approximate position of Washington D.C.

Using cursor, or joystick, we move the cross until it is over London (not marked, so you must guess the position). The words in the right hand margin now tell us that we are in Time-zone 00, at latitude 50 degrees 57′ and longitude 1 degree 41′. But wait a minute! Greenwich is in Greater London, and longitude is measured in degrees east or west of Greenwich. So the longitude should be 0 degrees. And according to my atlas, the latitude should be 51 degrees 28′. (The manual does in fact give the latitude and longitude of many important places, I realised later. Greenwich is not included; but London is given as 51 30N, 0 10W.) By using the cursor we can get the settings exactly right. This is not all that easy to do; we may have to strike it sharply so as to avoid moving the cross too far, as will happen if the cursor is held down for even the smallest fraction of a split second.

The time shown on the screen is 9:15 on 1st January last. To alter it, we press 'f1.' again and words appear, highlighted, in succession, in the bottom right-hand corner. We keep pressing until the highlighted word is 'SET'; then press RETURN. This produces a display showing month and year; date, time etc. I set it at 11.01 pm on September 15th, 1988.

To get back from the map of the world to the start of the sky, we again press the faithful 'f1.' until the word 'SKY' is highlighted at the bottom right-hand corner. Pressing RETURN starts off the computing, and a changing legend at the bottom of the screen tells us what (e.g. Moon, Saturn) is being computed at the moment. The screen then changes and shows us the view from that place, at that time, as if we were looking south and our window was 72 degrees wide. By pressing the 'N' key, we can make our window to the sky (as it were) face North. The computer works out what would be visible and shows this on the screen, with an 'N' at the bottom to remind us in which direction we are looking.

Obviously, there is nothing difficult about that. Provided you know the latitude of the place in which you wish to set up your 'observatory', you can in effect place it there, and look to North, South, East or West and see what is visible on a date and at a time selected by yourself. That is the core program, and, if you think about it, it is quite something.

RAVEL

"You can alter the angle of viewing, tilting your telescope upwards, so to speak, by moving a cross upwards with the cursor until it disappears off the screen."

You can alter the angle of viewing, tilting your telescope upwards, so to speak, by moving a cross upwards with the cursor until it disappears off the screen. The word 'slewing' appears at the bottom of the screen, and the diagrams showing the planets etc. change until one reaches the zenith and the words 'Looking straight overhead' appear at the bottom of the screen, signifying that the telescope cannot be pointed any higher.

All very interesting. But how does one relate it to real life? By looking at the real sky. Say you are looking at it from London, on the night of September 15th at 11.01, and you see a tiny object just to the upper right of the constellation of Cygnus and want to know what it is. You find it on your screen. You move the 'cross'

cont. on next page

continued from page 35

SKY TRAVEL

representing the cursor position until it exactly coincides with the dot. You then press 'f7.' and a message appears at the foot of the screen saying 'when text appears, use CRUSOR to scroll'.

There is a pause whilst the cog-wheels whirr. Then the message "31 Cygni HD# 192577 3.8 magnitude. SP" appears. Scrolling reveals: "spectral class K2 (var); double star, separation (seconds) = 338; 466 light years distance . . . (use RETURN to exit text mode)." "Double star"? The Glossary tells us this means two stars which appear as one because they are nearly in line, or are close together. It also tells us that a light year (the distance travelled by light in one solar year) = 5,880,000,000,000 miles. So the tiny objects you have spotted are 2,740,080,000,000,000 miles away!

Fascinated? This is just the beginning. Chapters in the outstandingly helpful and educative manual tell us how to watch sunrise and sunset, or the sun at equinox near the South Pole. There are chapters on astronomy, sky recognition maps, identifying individual stars; demonstrations of using SKY TRAVEL as a low power telescope, calculating the phases of the moon. You can use it to go back in time and see a simulation of the solar eclipse which Thucydides saw in Athens on 3rd August 431BC! Or you can go ahead to the next eclipse predicted to occur on June 30th 1992.

The manual is full of interesting glimpses into history – ancient civilisations like those of Assyria, Babylon; of astronomers, from Aristotle to Kepler, from Horrocks to Halley; of famous monuments connected with astronomy, like the Great Pyramid of Giza, and the Stone Lion of Nimrud Dagh (which bears a star pattern identifiable as the constellation of Leo.) It has a section on navigation and shows how to fix one's position on earth by the stars and time. Other topics include Space Exploration and Extra Terrestial Life. In short, there is enough to hold the imagination for hours on end.

"by the time I took the print-out it was showing the sky at 1235 in the early morning of the following day: September 16th 7 BC."

If I had read a review of SKY TRAVEL saying what has been said up to now, I would have been impatient to ask two questions.

The first question is: "Will it show the famous star of all? . . . . The Star of Bethlehem?" The answer is a qualified 'Yes' (see p.33 of the manual). There is, of course, some doubt about its identity, partly because of the difficulty in fixing the actual year of Christ's birth and the time which elapsed between them and the arrival of the Magi. However, it has been suggested that 'the Star' was probably an alignment of the planets Jupiter and Saturn. This would have happened, and been visible in that part of the world, on September 15th 7BC. So I followed the instructions and SKY TRAVEL enabled me to see the position of these two planets and the other stars as they would have looked to an observer in Bethlehem nearly 2,000 years ago.

The second question is "If one found a screen particularly interesting, is it possible to print a copy of it?" Again the answer is 'Yes'. The manual expressly mentions the VIC 1525 and Commodore MPS 801 but says nothing about other printers. I had neither of those to hand. Would it work with the STAR LC–10C set to Commodore mode? Yes it would. Included in this review is a print-out of the position of the sky taken after I had viewed the 'Star of Bethlehem'. The program's clock had ticked on a bit and by the time I took the print-out it was showing the sky at 1235 in the early morning of the following day: September 16th 7B.C. You will see that the details which appear on the right hand side of the screen also appear on the print-out. The dotted portion at the foot of the page is the area below the horizon, but as the program represents the earth as being transparent, you can see stars etc which have dipped below the horizon (e.g. Aquila, the Eagle, identified on my print-out by the letters 'Aql').

To buy or not to buy? That is the question. This review should enable you to decide if it is your type of program. Would you be interested in charting the skies and zipping 10,000 years in either direction? (Or would you rather cruise through the skies zapping 10,000 aliens in all directions?) Is your imagination stimulated by all this talk of constallations and planets? Or would you prefer strip-poker?

SKY TRAVEL fulfills all its aims excellently. If this is the sort of program you would like, then I am sure you would like it very much.
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A question ... Have you ever fancied a life-sized Sam Fox (or Richard Gere!) on your wall? Or maybe just a huge blow-up of your favourite picture? And do you have a copy of that picture from one of the popular art programs? You have! Well it can be yours with "BILLBOARD MAKER"

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The novel use of "rooms" for each of the major parts of "Billboard Maker" makes the program very simple to use, with clear icons and multiple-choice menus showing all of the options within each room.

To change room, you simply go to the "Switchboard" and select the room you wish to go to!!

It is in the "Photo Lab" that the real power of "Billboard Maker" is to be found. Here is where you select what size the finished print will be: Standard size, Sign size (4 times larger) or Mural Size (16 TIMES LARGER!!)

Once enlarged, you may save the ENLARGED picture. The programme achieves this by saving "standard sized" segments of the enlarged picture along with a special "ID" file to tell the programme how to print it out. In theory, by reloading an enlarged segment and enlarging it, you can increase its size infinitely!!

"Billboard Maker" also uses the (Famous?) OPTOMIZER, as first seen in Photo Finish, to smooth out ragged eges and retain maximum definition during enlargement. When saving an enlargement, if you've elected to use the Optomizer, each segment is "optomized" on-screen before it is saved. This shows you just how effective it is. It is VERY effective!!

Once your picture/enlargement is saved, it is time to head for the "Printing Press". Here you can print out all of the picture or just one segment, on a variety of printers. If you choose to print an enlarged picture, the previously saved "ID" file will automatically link together the segments in the correct order, to give you either two or four strips of picture which you can then rejoin.

One little problem here though. The only Commodore Printer option is the 1525, which is perfectly OK for MPS 801 owners printing 'standard' sized pictures. To print enlargements however, you have to reset the computer and load a "Printer Utility" programme (supplied on the disk).

Also supplied on the disk are various "Frame" and "Font" examples for use with the program or you may design your own. Plus an interesting little piece of ML called "Controller Board" which you may use in your own programs to load and display any picture saved through "Billboard Maker".

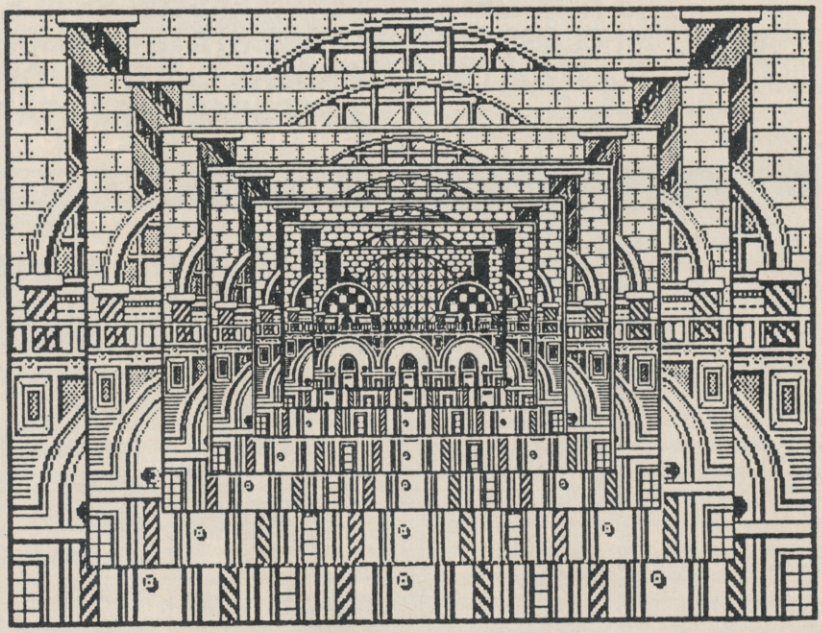
Once again the packaging and presentation is of a standard I have come to expect from Solutions Unlimited – very good.

The manual supplied had one or two discrepancies in it, but is full of hints and tips (and even help for hackers!). As with "Screen F/X" a 'walk-through' example is provided to get you used to using the program.

In conclusion this package from Solutions Unlimited is superb! For those who want to print out large signs, posters or pictures, "Billboard Maker" is a must!

At just under £25.00 each, it may be a little pricey, but well worth very penny. Me? I'm off to see if I can enlarge Sam Fox any further!!!!

N.S.



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Opinion

A revolutionary turn . . . back to computer innovation as the Japanese refuse to sell licences to their coin-ops, J. Minter, clairvoyant, stares into a PC box and sees the future . . .

Yow. Back into this text editor again, after I swore that I'd never word-process another commasworth ever again after having done the Trip-A-Tron manual (that manual's the size of a small novel, and was hell to write!). I just the other day actually sold the first copies of the new lightsynth. It's quite a relief to see the final, finished product after a year of heavy development work. What is totally weird is to think that even if the lightsynth sells well in Europe, it'll probably not make me as much dosh as the Vic-20 version of Gridrunner, which was sold in the States during '83, the prime-time of the video games boom, and which took me precisely a week to write, starting on a Monday morning and finishing off the following evening. There Ain't No Justice.

Speaking of the videogames boom . . . Remember a few issues back when I referred to something called the PC-Engine? Well, I got one; I know it's been fairly well-reported in the general games mags, but in case any of you haven't heard of the device yet, here's a brief summary:

The PC-Engine is a miniscule white box, about five inches square and maybe an inch and a half thick. Around the edges of the box are a 9V power inlet, a joystick socket (it uses Joypads like the Nintendo, but the socket's non-standard, and looks like the old C16 joystick socket), video outlet (RF modulated NTSC) and a whopping great 69-pin expansion socket. There's an on-off switch too which doubles as a protective gate for the cartridge bay; it is impossible to remove a cartridge with the power on. The cartridge bay is just a recess in the top of the unit. The cartridges themselves are actually just ROMcards, about the size of your Access card but slightly thicker and you can't buy CDs with them. I'm not sure of the capacity of each ROM but I would say at least 128K judging by the games' complexity, maybe more.

This little unit costs about £100 in Japan and blows seven shades of (bleep) out of the Amiga (AND the ST!).

The games I've got at the moment are Victory Run (for 'Victory' read 'Out' and you've got the idea) and the classic blaster R-Type. Victory Run is, well, Out Run with superb, fast, ultra-smooth road effects (the hills and valleys in the roadway are as good, if not better, than in arcade Out Run) and a lot more depth than the arcade game, with four gears and the capacity to carry spare parts for your vehicle (your tyres and suspension take a hammering in the rough desert sequences and can be replaced at checkpoints; and you can knacker your gearbox and engine through injudicious use of your gearshift). There are eight tough stages and if you complete the game (which I managed once) the driver jumps out of the car and runs down the beach into the sea, splashing himself with water! Graphics throughout are stunning, with deep, rich colours, parallax-scrolling horizons, huge sprites and spectacular day-to-night transitions as you drive.

"There are eight tough stages and if you complete the game (which I managed once) the driver jumps out of the car and runs down the beach into the sea, splashing himself with water!"

As for R-Type, well, what can I say? This isn't just 'a conversion' of R-Type; it is R-Type, down to the last detail. To prove my point, playing on the PC-Engine I usually get to the middle or end of Level Four before I die. Yesterday I came upon an R-Type machine in a local arcade. The last time I played the game in the arcade I couldn't get to the end of Level 1; I walked up to the machine and got straight through to Level Four using the identical techniques to those I use on my PC-Engine. Firing rates, attack-patterns, all exactly the same. The few differences I noticed are these:

On the PC-Engine, the screen scrolls very slightly up and down as you move vertically. This is to provide the same play-area as the arcade game (which has a bigger screen) and doesn't affect the gameplay at all.

The PC-Engine does have a wee bit of sprite flicker on the huge Level Three mothership, but this is negligible, and matters not when you consider the third and most unexpected difference:

The PC-Engine is faster than the original arcade game! I noticed that, at certain points in the arcade game (such as the Level Three mothership, or the Snake at the end of Level Two) where there's a lot of action on the screen, the action slows up as the hardware struggles to keep track of the complex display. This does not happen on the PC-Engine!

Lastly, PC-Engine R-Type has only four levels, as opposed to eight on the arcade game. This is due, I suppose, to the memory-size limitation of the ROM-cards, but you can buy R-Type II, which is the last four levels, and by entering a Mission Code (granted at the end of R-Type I) you can carry over your ships and score and thereby play the whole game.

This tiny Japanese marvel marks the beginning of the dichotomy in computing which I've been predicting for ages. It also achieves what the designers of the Amiga originally set out to do – provides the consumer with a home game that's as powerful as an arcade game. When these devices – and others in the pipeline such as the forthcoming 16-bit Nintendo – get to the UK, the 'popular' games market currently dominated by US Gold et al will collapse. Look at the games charts. Notice how the top-selling games are arcade licences. Now, imagine that the PC-Engine is on sale here. You can walk into a shop and spend £500 on a new ST or Amiga and subsequently pay £20 a shot to US Gold or Gremlin or whoever for a conversion of an arcade game; or you can spend £100 on a PC-Engine and get what amounts to the arcade game itself. And when you buy new games they'll be the same price as ST or Amiga disks (£20) but they'll be on ROM (no loading wait or virus-corruption, no German hackers) and instead of being a 'nearest-approximation' to the original arcade game they will be PERFECT. Down to the last pixel and alien. And judging by a PC-Engine brochure from Japan which I've seen, there's going to be some VERY interesting stuff to plug into that 69-pin expansion port, too.

That's how the market is going to split. There'll still be 'normal' computer-users, for you can program an ST or Amiga and you can't on the PC-Engine (yet); but the market will divide between those who want a computer, and those who want to play games. And what will become of those megalithic software houses who rely for their income on getting the latest arcade-conversion to the top of the charts? It's quite likely that the major arcade-game manufacturers will start producing their own PC-Engine conversions (Namco are already releasing stuff in Japan) and will find it to their advantage not to sell licences at all, thereby leading to the collapse or radical transformation of the software-empires and a return to unusual, innovative home computer applications after the past few years of being swamped with half-baked licensed conversions.

Full circle. Most satisfying.

I'll leave you now to think about the implications of all this. I fancy a crack at that damn Mothership at the end of level 4 in R-Type . . .

J.M.

3½

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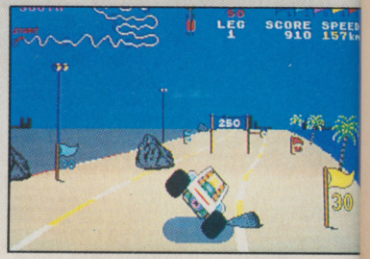


Only the Amiga makes it possible!

GEOFILE 128

Do you want to find someone over 21 who lives in Walberswick, doesn't smoke, is tattooed and called Dennis? Whatever turns you on, says Bob Collyer, brandishing GeoFile.

In last month's issue of ***CCI*** we took a look at GeoCalc 128. This month another Geos application, GeoFile 128, gets the spotlight treatment. These two separate programs complement the now very successful Geos operating system. There are even more 128 applications already available from Berkeley Softworks using the Geos system. Other good news for Geos owners is that more software companies are producing packages to increase the productivity of Geos.

I hope you all had a chance to read the "Geos Reassessed" article in last month's issue so you are all familiar with the way Geos works. Those of you who already own Geos 128 could easily find more than enough reasons why GeoFile could organise your life a little better. GeoFile is a Geos based database (*basically*!). A computer user's "yuppie Filofax" if you like. We all know that a computer is best suited to number crunching and data sorting, so here is the GeosWay of handling and manipulating very large or even small amounts of information easily, quickly and most importantly, reliably.

"You are guided through step by step all the various methods of creating and using a file to achieve the best results, appearances and reports"

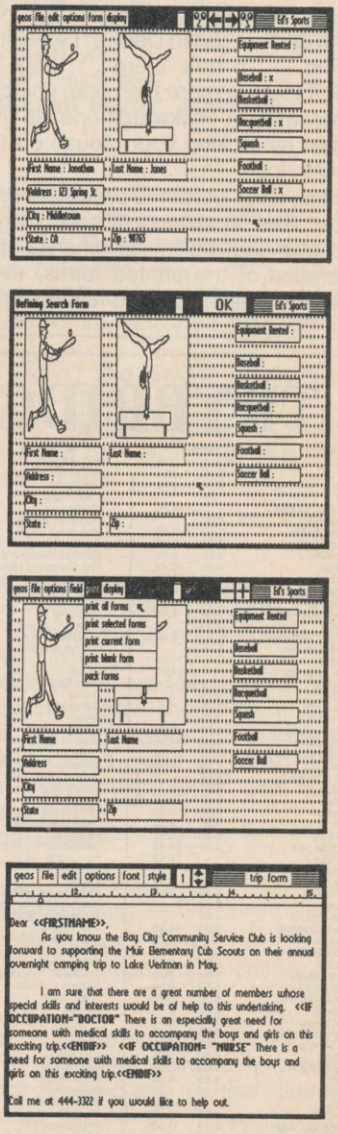
Using GeoFile it is possible to store, recall and analyse all different kinds of information. Ranging from important customer stock records, invoices or inventories down to your own personal record collection or favourite recipes. Use GeoFile to keep track of your friends' addresses, phone numbers or birthdays. Be as bureaucratic as the DoE. Fill in forms and keep records, just as the CIA do, so why shouldn't we?

This program is as easy to use as other Geos applications, also a very flexible and powerful tool. To begin a record card system you first must design and create an "information form" to be displayed on screen to suit th particular subject you wish to file. This becomes the master form into which all recorded information will be stored.

The GeoFile Manual contains a sample database form for you to copy and to help you become familiar with entering data into. You are guided through step by step all the various methods of creating and using a file to achieve the best results, appearances and reports. The design of a form is very important as will become evident. For instance, you may have forgotten to include a place on your form to include "date of birth" or "sex", but with GeoFile it is possible to change things part way through.

I wish we had had GeoFile a couple of years ago when I entered a database with over 1000 stock records. It took around two weeks to compile and when I had finished I realised that there could have been a couple of more fields of information to make the original idea much better and easier to handle. The software I used would not allow me to add more fields but GeoFile can do this and much more!

Having designed the layout of your master form and given each data entry point a heading, the next objective is to enter the records you wish to keep. As is customary with Geos, a mouse driven cursor can scan the screen or menu bars and give access to it by just clicking on it. Entering information and editing existing data is so simple it is a real joy to use. A possible 200 characters are allowed per entry – this should be plenty enough to cater for even the most complicated entries. When you have finished entering details into one field, pressing return automatically skips you into the next entry point, this makes for fast record entry.



Depending on the amount of disk storage available on your workdisk, your database can grow up to 3000 forms.

When you enter a record the previously entered form is saved to disk automatically, at the same time it is sorted into alphabetical order or, in the case of number field, numerically of course! The sorting is done by defining a "sort" field. It can be any field you wish and can be changed at any time you like to a different field.

If you are a club secretary you could use GeoFile to organise things faster and better than before. You can for example search and sort out all members who have still to pay their membership fee for the coming year, combine their individual details into a predefined document and send out a polite reminder . . . (Pay up or else!) . . . sent out in individually addressed envelopes. All done by the conditional search function. Maybe you want to search out all members over 21 yet under 40 years old, who live in Walberswick, don't smoke, have a tattoo on their left arm and are called Dennis. Leave it to GeoFile! . . . If he's there . . . he'll be found. If there is more than one, you can look forwards or backwards one file at a time just by clicking your mouse on the particular icon.

Printing all or just some of your records can be done in sixteen different ways. You have the ability to change the appearance of the printed forms, even print small parts of selected records only. GeoFile can give you the luxury of a "belt and braces" system whereby all the computer's information could be printed out onto the old fashioned card index files as well. Remember those dirty old "dog eared" cards?

"GeoFile can give you the luxury of a 'belt and braces' system whereby all the computer's information could be printed out onto the old fashioned card index files as well"

GeoMerge is just one other application that comes bundled with GeoFile. It allows you to produce multiple copies of a document or circular then each document can have unique names, addresses or other data you define merged into it to produce a finished article. You can either type in the data yourself, or bring in the information from another Geos application such as GeoDex, GeoFile or GeoWrite. You must have seen the kind of thing I mean. One morning the postman delivers a letter telling me I have been especially chosen as a contestant in an exclusive competition. The next day along comes another personally addressed offer. This kind of document can be produced and sent to particular people who may meet a particular requirement. Merge any criteria you wish to define from your database, so creating the individual document.

There are many more details of GeoFile but I haven't space here to cover them all. There is, however, one more which needs a mention. Using GeoPaint you may draw and create a photo. This graphic image may be your own, or an imported one, and dropped into the record form giving the personalised touch. As this would normally slow the operations down, a "hide" facility has been included. Using this will allow the working to go on as fast as usual, but then you can "show" the graphic image any time you wish to see them. GeoFile is the most flexible database I have come across. It uses the full 2mHz processing speed of the 128, 80 columns resolution, the numeric keypad, and must be used with Geos 128.

B.C.

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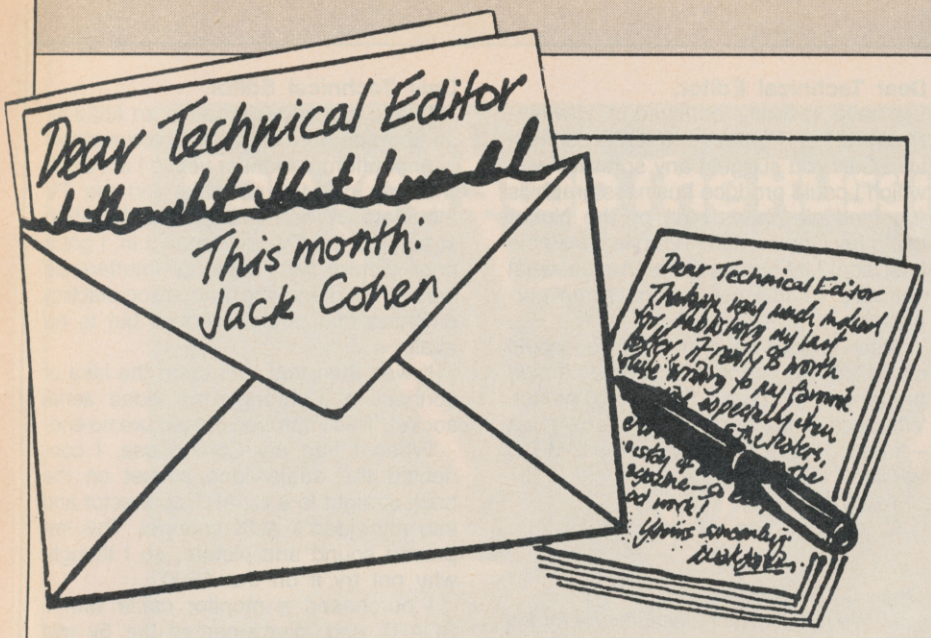


Dear Technical Editor,

I have owned a C64 for nearly a year now, and I have only used it for games. I have been searching for some serious application programs and would appreciate your advice. Is there any one package that can allow me to compose and play back music, like Deluxe Music Construction Set for the Amiga, on my C64?

Is is possible to use a standard parallel printer, for my C64 and an Amiga (which I am hoping to buy soon)? Is the Olivetti DM100 able to reproduce C64 and Amiga graphics? The Olivetti has the standard parallel interface, if this helps answer my last question. My last question is which is the best colour printer for under £200, and what are its "vital statistics"?

Yours faithfully,
Corey Banks, W. Australia

P.S. Are there any typewriters that can double as printers?

Dear Corey Banks,

There are many music packages for the C64 but, in my opinion, none compare with the programs available for the Amiga.

You can get a Centronics parallel interface and you can also obtain an adapter for the 64 to convert serial to parallel so that you can use a standard parallel printer for both.

These interfaces allow normal CBM graphics.

The STAR LC10 is the best all-round printer in the price range, but if you use a lot of colour then the Okimate 20 for quality colour.

The problem is that it needs a special paper and ribbon and although the colour is very good it is slow in operation (depending on the complexity of the screen).

Dear Technical Editor,

I have recently purchased Newsroom (as advertised in CCI) and no doubt like most users, find it a really excellent program. However, I have encountered a minor problem which I would be most grateful for advice on how to rectify.

My problem arises upon going to print in the Commodore MPS 801 (or MPS 803) printer selection. As can be seen on the attached print out No 1, the Banner prints OK but 1st line of print of Panel A and opposite panel is destroyed. Banner filled or not, the result is still the same. Whereas in print out No 2, printer selection has been changed to Citizen MSP (with or without interface card) but printing is in double density.

My system is a C64 and I am using a Citizen C120D printer with a Commodore Basic Interface Pack, thus making it a Commodore printer.

Please can you advise me on how to use Newsroom in the Commodore 801/803 mode.

Yours sincerely,
Pat Tylor, London SW1

Dear Pat Tylor,

A problem that sometimes occurs in a program with printer output is that the first character sent to the printer is either not sent or not received. If this character is a formatting control that, as in your case, tells the printer that graphic characters are following, then if the character is not received then the following characters are printed as received, i.e. not turned into graphics.

You could probably correct this by either making the first character a space or the first line a line of spaces.

Use shifted spaces in case leading spaces are trimmed by the program. CCI published a quick reference guide to Newsroom on pages 42/43 of our August 1988 issue.

Dear John Hicks/Technical Editor,

I have just read your Geos article in the August CCI and would be very pleased if you could answer a couple of questions.

1. Where did you buy the RAM packs? I have been trying Dimension, Calco, and Datel with no success, and was starting to believe they didn't exist this side of the Atlantic.

2. I am after a 256K 1764 for my C64s. I note that you have used a C128 1750 pack with success in a C64. Can you confirm this works?

I have even considered trying to build a pack myself, but I'm not sure what Geos expects to see for an interface.

I am delighted with my V1.3 obtained as a "freebie" with an Oceanic drive from Dimension. These people were advertising the RAMpack for the C64, but said they couldn't get hold of one, and have now stopped the ad.

Anyway, I would be very pleased to hear from you.

Yours sincerely,
Malcolm Baxter, Bracknell

Dear Malcolm Baxter,

1. RAM packs are available from Cavendish Computers Ltd of 66 London Road, Leicester, phone 0533 550993.

The RRP of the 1750 is £149.95 inclusive of VAT and the 1764 £99.95 inc. VAT.

2. I can't find anyone else who has used the C128 1750 pack in a C64. Perhaps one of our readers can let us know if they have also been as succesful as John Hicks.

Dear Technical Editor,

I am having great problems in using the Convert FD program on the Basic Extras Disk.

Could you please tell me which drawer the articles below should be in for it to work. Also could you tell me where the converted files need to be to access them from Amiga Basic and how to access them.

Amiga Basic
Convert.FD
FD Files

Yours faithfully,
P. Watmough, Lancs

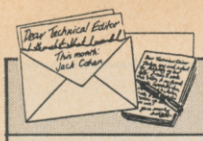
P.S. Your magazine is brilliant.

Dear P. Watmough,

The important point to remember in using Amiga-Basic is that you must enclose file names in quotes for file to work.

Copy the convert FD program into the drawer (directory) marked FD 1.2. Make this the current directory and then it will access ok.

continued on page 48



continued from page 47

Dear Technical Editor,

I would be grateful for your choice on disk drives. I have had a C64 for around two years and now would like to add a disk drive but have little knowledge of them.

Could you answer these questions for me?

1. What is the difference between a 5¼ inch and 3½ inch model in relation to games and other software?
2. Which drives do you recommend?
3. Could you also explain briefly what a freeze machine is used for and would I need one to use a disk?

Please find enclosed an S.A.E. I would be grateful for any reply to my questions as I don't wish to make an expensive mistake.

Yours sincerely,
Simon Leadbetter, Middlesex

Dear Simon Leadbetter,

The 5.25" disk drive has a great deal of software (especially games) written specially for that format. By which I mean the software is tailored to the 1571's ROMS in many cases for protection against copying. So that all the software will work with the standard disk drive, but will not always work with non standard disk drives such as the 3.5" 1581 drive. Such software will not transfer properly to other disk drives even though they are said to be compatible.

However there are many plus points for the 1581 and here you read the CCI article on page 32 of August 1988 issue.

The 1581 has faster loading, bigger capacity and much more software is being adapted to work on it.

The Freeze machine is most used as a backup cartridge, freezing and saving games etc. There are fast save and load routines, reset button and fast formatting of disks etc. See Evesham Micros advertisement in CCI.

Dear Technical Editor,

I am writing because I have just read a letter to you from John Canavan in June 1988 issue asking for a good computer repair company. As soon as I saw the name 'Video Vault' I thought I should write and tell you that they are a very good company. I have had my C64 in there twice now and both times there was nothing wrong and I got charged nothing at all. They also make their own C64 power packs, guaranteed and with a built-in power surge unit. Not bad eh? Anyhow, 'Video Vault' – a very very good repair service – etc.
Paul Ashby

Dear Paul Ashby,

Paul thoroughly recommends 'Video Vault' for repairs. We like to hear from readers, for the benefit of other readers, whether you have good (or bad) experiences with repair companies.

Dear Technical Editor,

I have recently obtained a Hewlett-Packard Pen Plotter (with IEEE connector). Can you suggest any software with which I could produce business graphics (bar and pie charts etc.) on the plotter using my Commodore 128 (via a suitable interface)? If I purchased an Amiga, what software could I use for the same purpose?

Also I would be grateful if you could clear up my confusion about Amiga printer ports. I have a Star NL-10 printer. Which cartridge is suitable for an Amiga – the standard Centronics or the IBM-PC version?

Yours sincerely,
C. A. Hamilton, N. Ireland

Dear C. A. Hamilton,

I have not heard of any software for the 128 using the HP pen plotter for business graphics (at the time of writing).

If you use an Amiga then you will find on most Workbenches a printer driver called HPGL which should drive the plotter in conjunction with Amiga business graphics software.

The standard Centronics cartridge is the one required to use the STAR NL-10 printer with the Amiga.

Dear Technical Editor,

I wrote a few days ago but neglected to state which computer I was referring to, so I will ask the question again.

I want to switch (on/off) up to three mains light bulbs (150 watts or less) under program control, on a C64. I realise that an interface will be required.

Thanks,
Graham Coltman, Herts

Dear Graham Coltman,

You will need a controller (otherwise known as an I/O board). When this is connected to the User Port and providing that you use suitable routines (which can be in Basic) to control external equipment such as lights, alarms etc. then this should work to control your lights.

Remember that all computers are at machine level programmed as either on or off and provided that you are careful not to connect low to high voltage then the hardware involved is not difficult.

Correction to letter from Quinto Davie in August 1988 issue

Precision Software Ltd no longer supply hard disks for the C128.

The only hard disk that I know of for the C128 is made in the USA by Xetec and is a 20 meg with a built in 1571 drive.

However it is rather expensive at around £800 and very few have been imported into the UK.

Dear Technical Editor,

I have recently purchased an A500 as an upgrade from my C64. Unfortunately I cannot afford a monitor yet so I am stuck with my old 14" portable and the TV modulator. When I connected the A500 straight to the TV and tuned it in, I got a poor picture with diagonal interference bars. I tried moving and disconnecting anything that could interfere but to no avail.

It was then that I hit upon the idea of connecting it through my video aerial socket. This improved the picture no end.

When I had my C64 in use, I connected the audio/video socket on the back straight to a SCART connector and into my video's AUX channel. This improved sound and picture, so I thought why not try it on the A500?

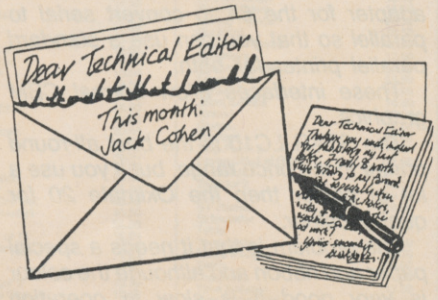
I purchased a monitor cable with a SCART end, disconnected the 5v and 12v o/p pins and connected the video up. All I got was a blank screen. I checked the RG+B and ground connections but I could find nothing wrong. They made no difference when disconnected. I then checked the Composite pins. When I disconnected the SCART CVBS input, the blank screen was replaced by snow, so this seemed to be the offending pin. It is corrected to CSync on the Amiga. Is this correct and am I doing anything wrong? Should it be possible to connect the A500 in this way? I see no reason why not, as all I would be doing is by-passing the video's internal tuner. As all SCART connectors are standard should this not work.

I look forward to hearing your opinion.
A.S. Hughes, BFPO 42

Dear A.S. Hughes,

As I understand it, from reading your letter, you are not using the A500 TV modulator. This can be purchased from any UK Amiga 500 dealer for around £25 (RRP).

All Scart connectors are not necessarily identical and therefore you should refer to the PIN listing in the A500 manual for details of the various connections. This listing can be found towards the back of the manual.



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Computer games players tend to think of consoles as kid's stuff, toys for the younger members of the family – Tony Horgan takes on a Sega Master System to see how old it makes him feel.

Dedicated games consoles were the beginnings of home computer gaming. It started with the monochrome bat and ball games that passed for tennis, squash and football when in reality the players were white lines and the ball was a cube. Things moved on with Atari's and its competitors' machines which promised "Space Invaders in your own home!". Atari, Collecovision, Intelevision etc, these were really toys, playthings that used electronics. You could, I suppose, call them 'interactive' in the sense that they answered your commands with action but apart from using a screen, generally a TV, they could have been clockwork. Then came, Clive Sinclair . . . what he won us over with was the versatility of *programmable* machines, the ZX80 and its successor the ZX81. Yes they were *computers* not only for kids. They were electronic marvels – by mail order. From there on, consoles were on the way out.

The SEGA MASTER SYSTEM

Over the last two years, however consoles have been making a comeback, the front-runners coming from Nintendo and Sega, though Atari at the recent Consumer Electronics Show in the U.S. did not bother to put ST's on its stand but piled high its 2600 games console. The Sega Master System, distributed in the UK by the budget games market founders Mastertronic, has taken the lead in Britain. It looks to sell six figures of consoles but how does it shape up to our all-purpose keyboarded computers?

The biggest point in Sega's favour has to be its price. For £79.95 you get the console, two control pads, a version of the coin-op Hang On and all the necessary leads and connections. The console itself has an attractively-streamlined case and is very lightweight. Two standard joystick ports and a dual purpose slot are lined up on the front side. A cartridge port, reset and pause buttons are located

on top with another port at the rear for "future expansion". The control pads act as joysticks but are more like joycards, with a small disk for direction control and two independant fire buttons.

Sega games come in two forms: cards and cartridges. The cards are very neat and compact (approximately 8cm × 5cm) and can hold 64k. This sounds puny compared to the more bulky cartridges, the biggest of which hold half a megabyte, though even bigger games are planned for the future. A very wide variety of games are available, including platform, shoot 'em ups, sport and conversions from Sega's coin-ops.

In most of the games, the console's high quality graphics are taken advantage of with detailed, often cartoon-style sprites and backgrounds to match. Unfortunately the sprites tend to flicker more often than would be expected. Even so, with the exception of a few games such as Space Harrier that are working very hard, all scrolling and sprite movement is totally smooth. A competent sound chip is called upon for jolly jingles and varying qualities of sound effect.

If the control pads are proving inadequate, a more traditional joystick is available for £12.95. This is best used on table-top due to its size and firm rubber "feet". Travel on the stick is a little long giving a loose feel, but anyone used to a stick will find it more natural than the pads.

A light phaser is another optional extra at £44.95. This has been designed to make the player think he is Luke Skywalker, the fastest gun in the universe. Its large, sleek design is very futuristic although most of the games that use it are firmly fixed in the present. A "combo-cartridge" comes with the gun and has three games on one cartridge: a realistic but very simple skeet shooting simulation, FBI shoot-out training and an entertaining safari hunt. Probably the best use of the gun is in Missile Defence 3D which also needs the assistance of the 3D glasses.

These specs are trendily crafted in shiny black plastic and designed to leave room for a pair of normal glasses underneath. The two liquid crystal lenses are rapidly switched on and off by the machine, synchronised with two images on the screen, simulating 3D. Although a normal 'psuedo' 3D version of Space Harrier is available, Sega's popular coin-op has been re-worked so as to use the glasses for a true 3D effect. Not only has it been "3Dimensioned" but the levels and graphics have been altered to give existing Space Harrier owners some incentive to buy the 3D version. At £39.95, they do not come cheap, but playing Space Harrier in true 3D is a really wierd experience, I loved it!

Alex Kidd in Miracle World £19.95

Although a lot of the games for the Sega system rely on the impact of first impressions with a fairly short interest span, Alex Kidd is much more than the simple platform game it at first seems.

Opening with a standard platform stage, a sheer rockface must be descended whilst avoiding birds and collecting money bags. Reaching the

bottom you fall into a fishy pool where more cash is guarded by harmless looking scalies. Out onto dry land again you can visit a shop to buy a motor bike, extra lives or a pedal-powered helicopter. Subtle changes in the controls for each scene give the game great variety, as do the many surprises along the way. Excellent graphics and sound effects add to the fun making it one of the best games for the basic set-up.

Afterburner £24.95

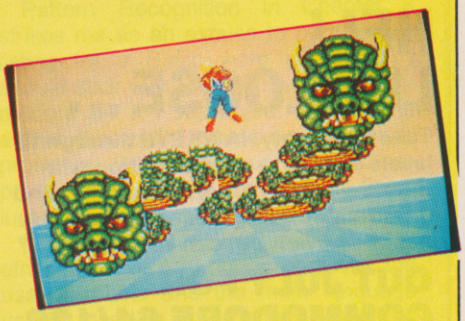
It would be asking far too much to expect Sega's unbelievably fast fighter plane shoot 'em up to appear anything like as speedy on the console. A reasonable amount of the original has been reproduced although the game has been simplified.

Viewed from behind the plane, attacking jets fly in from the horizon and up from the rear. A machine gun takes out most planes but missiles can also be launched which lock on and take care of the rest. Ground features are restricted to small trees and waves over the sea which can hardly be said to move smoothly, although a fair amount of speed is there. There is little to the game but it still provides some satisfying blasting for a while.

Space Harrier 3D £24.95

This is one of my favourites, using the glasses and some really decent gameplay. You control the space harrier, running and flying through numerous chequered floored lands of mutants.

As the grid comes at you from a few feet inside the T.V. (or so it looks) towers and destructable buildings threaten to stun you on impact. Dodging these is not your only concern; aliens resembling the tie-fighters from Star Wars fly at you and giant mechanised Chinese dragons await you at the ends of the levels. Big explosions and an absorbing 3D effect give the game an addictive pull strong enough to keep you playing for some lengthy sessions. A must to get the most from the 3D specs.



That is just a taste of what is on offer, but special mentions must go to Super Tennis (£14.95) and Rocky (£24.95), both of which are great fun.

I cannot see Sega's (or Nintendo's) console replacing home computers for the fact that even if C64s and Amigas are used soley for games, the user likes to think he has something more intelectual than a toy. Even so, the Sega Master System would make an excellent addition to anyone's hardware collection. The ommision of loading pauses brought about with the ROM storage and easy to understand games will be particularly appealing to the younger members of the family. Well that's good enough excuse to get one anyway!

T.H.

icpug

Parallel Processing – 1

With numerous 1541 parallel enhancements on the market, it is worth examining how, and at what cost, they achieve their transfer rates. It is worth remembering that most disk drives in other computers work at this speed anyway. The 1541 just happens to be exceptionally slow. In effect, designers are replacing features that were removed to reduce manufacturing costs. Considering it is an intelligent device, the 1541 is what Commodore designed it to be, a low cost disk drive. Parallel packages usually feature a board to be plugged into the 1541 with extra RAM and a new DOS, a replacement Kernal for the computer, and a parallel cable to connect the two together.

(1) Parallel Bus

Original Commodore PET drives featured an expensive but relatively fast parallel IEEE bus. This was replaced with a low cost software controlled serial bus when the VIC and 64 computers were created. Facilities are still available in the 1541 to allow the connection of an 8 bit parallel cable to the computer's User Port. Alternative software control can be "patched" into the existing Kernal and DOS ROMs to utilise this new cable during standard disk operations. A parallel bus used in this fashion will speed up transfer by about 3 times. When used in conjunction with the extra facilities listed below, phenomenal transfer speeds of up to 50 times faster can be achieved. However, any serial bus fast transfer routines (turbo loaders) will not recognise this new bus, and so not use it.

(2) GCR Decoding

Group Coded Recording (GCR for short) is the method used to store data onto the 1541 disk surface. In essence, 4 data bytes are converted into 5 GCR bytes, which are written to the disk surface. During reading, these 5 bytes, are converted back to the original 4 byte form. The original PET drives used expensive hardware to do the read/write conversion as the data was written to or read from the disk. In the 1541, GCR is stored in a temporary buffer, and converted using lookup tables. Obviously, a lot of time would be saved if the GCR could be de-coded as it comes off the disk. However, there simply isn't enough processor time between each GCR byte to do this. Some of the methods used to get by this bottleneck include: partially decoding the GCR as it is read off the disk and decoding the rest later; doubling the processor clock speed to 2Mhz; using complex hardware addressing for the lookup tables; reading the 5 GCR bytes as 4 10-bit bytes.

B.B.

Next: RAM buffers and Shortcuts

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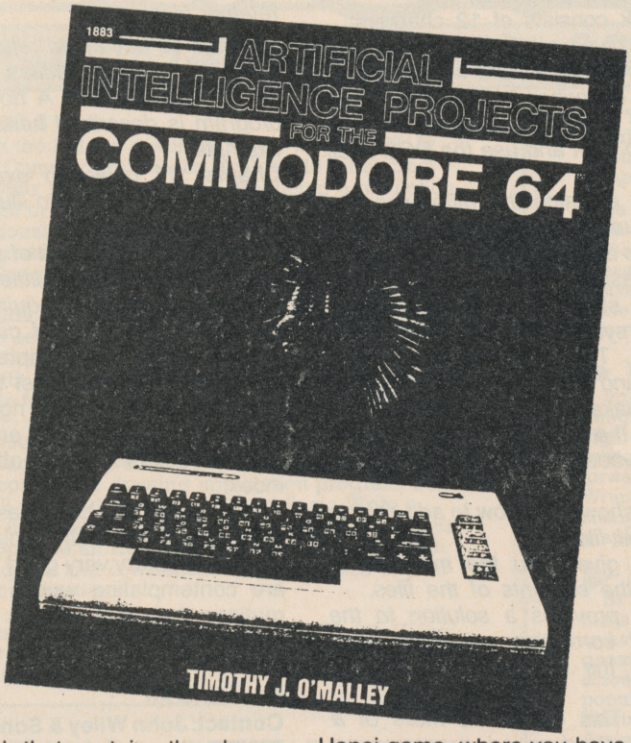
Artificial Intelligence Projects for the Commodore 64

**(Timothy J. O'Malley
Tab Books Inc, £12.25)**



Any book that contains the phrase 'human intelligence may also be an illusion' in its second paragraph is either going to be interesting or contain vast amounts of meaningless waffle. Fortunately for Mr. O'Malley he usually manages to stay on the side of interesting, and this reasonable excuse for putting together 20 program listings for the Commodore 64 into a book actually works quite well. For those of you whose fingers are not as nimble as they might be, there is also a disk available with all the programs ready for running.

After a brief introduction to artificial intelligence and a few definitions of some of the terms used in the field, we are treated to an overview of some of the programming methods that will be used later on in the book; tree searches, algorithmic methods, heuristic methods, and pattern searching. Each of these four areas are then used thorughout the book in the various programs, along with specialised chapters on natural language processing (Eliza-type programs, naturally), behavioural processes (rats in a cage, the so-called Skinner cage) and a final look at robotics. No, not dancing, merely the use of robots in the field of A.I.

The first of the listings gives you an example of the tidiness of the author's programming, and shows that we are dealing with a competent programmer who clearly knows his field. It is a non-graphical version of the Towers of Hanoi game, where you have to move a number of disks from post A to post C via post B. The bottom disk on the post is the largest one, and they get steadily smaller as you progress up to the top one. When moving the disks, you cannot put a larger one on top of a smaller one. The solution presented in the book, for any number of disks, occupies just eight lines of code. A graphical version, using sprites, follows, and as for all the programs in the book there is a full and detailed description of each line of code.

The next problem to be tackled is known as the Knight's Tour: how to get a knight on a chessboard to visit every square without landing on the same square twice. Again we are using sprites, and even if the author cheats slightly it still shows how the computer can make the best use of information presented to it, which seems like a reasonable definition of intelligence to me.

Chapter 2 takes us onto the use of A.I. in games, and naturally enough the game of Nim is presented as one of three examples of a computer doing its best to outwit its human opponent. Chapter 3 is a study of behavioural processes, and features the aforementioned rat in a cage. Unfortunately this program does not have any graphics, but relies instead on statements on the screen. By giving the rat a 'shock' when it does something that you don't want it to do, the theory is that it will perform that action with decreasing frequency. Leaving the rat alone when it is behaving in a sensible fashion should increase the frequency of that action. That is the theory, anyway, but a rat in a cage and a rat in a kitchen are two totally different things.

Chapter 4 is the Eliza one, and talks about natural language processes. Parsers in adventure games are a good example of this. However, what the author refers to as 'the best program in the book' is a little something called Perfect Logic, where the computer makes deductions from facts presented to it. The author refers to it as 'an original' of his: he certainly wrote the code, but the idea behind it has been around for many, many years, and cannot be described as original. Still, that does not detract from a fine use of A.I.

Chapter 5 and we're onto heuristics. A heuristic, as defined here, can be seen as a rule of thumb used in solving a problem. Fine, and the two programming examples shown in this chapter are a Tic Tac Toe game (noughts and crosses to thee and me) and an extension of that to a Five in Row game, where the computer and up to three human opponents compete to place five dots in a row.

Pattern Recognition in Chapter 6 strikes me as an excuse to print a long listing for a Basic word processor. I should stick with PaperClip on the Commodore 64 if I were you, even if the author does claim to have used the word processor listing given in the book to produce the book's manuscript. Good luck to him.

The final Chapter, Chapter 7, discusses other areas of A.I., and in particular the use of robots and the main language usually used in A.I., namely Lisp. The author's American roots are given away here, when he hopes that someone one day might invent a robot that will 'pick up the house'. Presumably he means 'clean it' rather than carry it to the nearest rubbish tip. That aside, another interesting chapter that has at the end of it a graphics program which has no relation to A.I. whatsoever, but which makes an excellent conclusion to the book. High resolution drawing, complete with screen dump routine. Very nice.

At only 129 pages it is far too pricey at £12.25, but if you were to see it lying around second-hand somewhere, it is well worth a look. A real A.I. expert would probably know it all anyway, but for an unusual and interesting collection of programs it works as far as I am concerned. Good, at half the price.

P.G.

COMMODORE 128 DATA FILE PROGRAMMING

Well, you now have a computer, what are you going to do with it? That is a question that most computer owners will have asked themselves. The most common thought is that computers are very good at sorting through masses of information and a database of some sort is the most obvious choice of program.

What if you have a very special job to do, or even a very simple job, that does not warrant spending vast sums of money on a commercial database program? The only answer to that is a bit of DIY and probably quite a bit of head scratching.

Fundamental to all aspects of data handling is an understanding of data files. The Commodore computer systems have always been provided with some very powerful file handling systems, but like so many systems the documentation leaves much to be desired.

Commodore 128 Data File Programming by David Miller is an attempt to overcome this shortcoming and is specific to the 128 user. There are two basic types of data file available to the user, and they are Sequential and Relative. The book is packed with program examples, not just demos, but if you take the time to type them in you will end up with some fairly useful programs. At the least you will have a good base on which to build your own programs.

The book consists of 12 chapters:

Chapter 1 *gives a basic introduction of the various file types and what a file is.*

Chapter 2 *describes the most common of filetypes, the BASIC program file, and also how to boot and use the DOS shell program.*

Chapter 3 *explains the difference between sequential and relative data files and how the data is stored in each type of file and erasing.*

Chapter 4 *starts the first example, a mailing list system using the sequential file system. The examples are clearly presented and the text has a nice flowing style that makes for easy reading. Many aspects of the mailing list are covered, such as keyboard input and creating the file.*

Chapter 5 *shows you how to add data to a sequential file.*

Chapter 6 *gives you the methods of displaying the contents of the files.*

Chapter 7 *provides a solution to the problem of correcting sequential files, and writing the corrected files to disk again.*

Chapter 8 *This chapter is more of a discussion of advanced programming techniques than anything else, but even more is added to the mailing list program.*

Chapter 9 *This is the start of the relative files sections, and this chapter introduces the system and shows how data is stored in the file and some basic concepts about relative files.*

Chapter 10 *advanced relative file programming, creating the files, searching for the information, etc. A home inventory program is described here as the main example.*

Chapter 11 *gives an example of the stock market system to illustrate how to plan a file system.*

Chapter 12 *This is a bit of a pot-pourri of odds and ends, all the little routines and utilities that are often required. Not many examples but plenty of guidelines.*

Each of the main chapters has a few questions to answer, just to make sure that you have got the right idea. The answers to the questions are in appendix A. The book is rounded off with a good index.

I found that this book was very easy to read, though a little dry in places. However, it does a very very good job and if you are contemplating writing file handling routines then this book is well worth a read.

A.E.

Price: £13.20
Contact: John Wiley & Sons Ltd., (0243) 779777

Time to Think *continued*

371 to read 371 IF s$(i)="mother" THEN b=b+1. Lines 375 to 379 are a further check on the user's response, this time watching for a strong emotional display and commenting on it if one is found in lines 377, 378 and 379. As always, there is plenty of scope for enhancement here.

Lines 380 to 389 are our final check for now on the user talking about mother, before we print up a comment in line 389 if the computer thinks that the user has typed in an interesting observation.

But if all our checks fail then we finally arrive at lines 390 to 392. The first time through we encounter the variable 'here', which determines whether or not the computer prints up a rather snooty "I see" comment. Line 391 then effectively throws the user's comment back, suitably re-phrased by the earlier routine in lines 340 to 358, followed by a prompt to "Tell me more" in line 392 before going back to line 10 for another input.

Having played about with this addition to the raw bones of last month's program, it is quite surprising what you find yourself telling it at times! But, as I said earlier, it is only really meant to be a bit of fun.

In the gap between this month's instalment and the next you might care to ponder on some of the ways in which even what little we have seen so far might be considerably improved. And the real key to doing this is just to type in any old nonsense at the keyboard and see what the computer comes up with by way of a reply. Obviously the computer is pre-programmed, and has not yet got the ability to take stock of the replies that it has already had from the user, using this knowledge in order to give a more meaningful response.

```
I inherit it from my mother
Good, now we're getting somewhere.
Tell me more!
My mother likes flowers
I want to learn about you!
It's nice having her around
That's interesting.
Tell me more.
She's such a happy person
I see.
she's such a happy person.
Tell me more.
I hate answering your questions
That's a strong emotion.
We'll discuss something else.
I'm glad you're opening up, though.
```

Then, if you wish to carry on the good work and make your own version of the program even more customised, think about the way in which a real interview might take place. It does not necessarily have to be a conversation with a psychiatrist, even if this is what we are basing the program on in the first place. Think about any sort of conversation, and in particular think about the ways in which a human links varous items together and, after assessing item a) and item b), plunges on and asks question c). Try to think how a computer might be programmed to do this.

Anything, or anyone for that matter, which learns something can be said to be behaving intelligently, but what we are trying to do here is to 'teach' a computer to learn like a human. The Commodore 64 knows that 64 plus 64 equals 128, always has equalled 128, and always will equal 128. It has not learnt that, it is just the machine side of things creeping in. And, in the true sense of the word, the Commodore 64 never will 'learn' anything, it can only obey a set of computer instructions given to it by us, the human side of things.

And that, when all said and done, is what we have to concentrate on. Joining the machine side of things to the human side of things, and producing the end result of a machine programmed by a human that exhibits traits of learning and which seems to be thinking intelligently. Of course, it is an artificially induced sort of intelligence, but that is what we are after, and that is what we shall be striving towards throughout the rest of this series.

See you next month! ***P.G.***

F.S.S.L

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continued

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SUPER 81 UTILITIES

Peter McDonald, admirer of the 1581 3½″ drive, examines a utility program that makes it even better.

In my recent article about the 1581 (3.5 inch) drive (see CCI August), I mentioned *Free Spirit Software Inc's* program *Super 81 Utilities* (£29.95; from *Financial Systems Software*.)

This program deserves more detailed consideration. I wrote of its ability to copy programs to and from a 3.5 inch disk in a 1581 drive. This is the main purpose for which 128 owners will buy it.

What do you need before you can use the 1581? A 128 or 128D, of course. It *will* copy from 1571 to 1571, or from 1581 to 1581. But you will not get full value from it unless you have both those drives. (What about the 1541? *Super 81 Utilities* will cope with some 1541 programs, but the manual warns that this is not always successful. However, 128 owners will tend to have bought the 1571 drive; the 1541 cannot provide most of the improvements the 128 can offer.)

Let us say that you have written some cracking programs on a 3.5″ disk and want to take a copy for your friend who owns a 1571? *Super 81 Utilities* will copy from 1581 to 1571. Of course, you could normally load a single program into the 128 from the 1581 and then save it to the 1571. But *Super 81 Utilities* will copy the whole contents of a disk, or up to 50 nominated files from one disk to the other. That speeds up the operation somewhat! When transferring from 1581 to 1571, of course, you are limited by the fact that the latter's capacity is less than half that of the 1581.

What do you get for your money? A 28-page A5-size manual; and the *Super 81 Utilities* program on (i) a 3.5 inch and (ii) a 5.25 inch disk. The manual is well-written and enabled me to do all I wanted, though items like RAM writer, and 1581/1571 Drive Monitor require some expertise to understand. (You need two program disks, because the program boots from drive #8, and this means you can treat the 1571 and 1581 drives as device numbers 8 or 9 as you wish.)

There are many other programming aids, security devices, and 'disk spring-cleaning' facilities. For instance, you can format the disk; scratch files; change the disk name; display the directory in the 'active drive'; rename a file; change the format (for security purposes); write protect (i.e. make the disk so that no-one can write to it); toggle between drives (e.g. make the non-active one the active one, so that you can read its directory); reset drives (i.e. give the active drive a cold start command); 'lock' files so that they cannot be erased unless the whole disk is reformatted; unlock them again; create an auto-boot; unscratch files in bulk; give direct DOS commands (e.g. 'validate'); trash a track; bulk erase a disk.

If the program contained nothing more than the items I have already described, it would be well worth the price asked. But it does have other features, mainly of interest to the more technically-minded but appealing to others, perhaps, as a bonus.

For instance, there are CP/M utilities. There is a Super Disk Editor, designed for GCR disks (GCR = Group Code Recording: the scheme used by Commodore to store information on CBM disk-drives). This enables you to modify data bytes; repair damaged sectors, allocate blocks etc. With RAM writer you can develop disk drive programs.

Other utilities facilitate 'partitioning', a concept familiar to many in the MS-DOS community but not to owners of C64/128 floppy disk drives.

The multiplicity of files held on this small disk can become unwieldy. Searching a long list of file-names takes time. What if you could split the disk into partitions, each with a separate directory, limited in size and easily searched? That is achieved by the facility CREATE PARTITION. Once created, a partitioned area is not affected by the 'VALIDATE' command or an accidental reallocation of blocks. The main directory is called the ROOT DIRECTORY; others are SUB-DIRECTORIES. The maximum size of a partition is 1600 blocks; the minimum (with directory) is 120. The default setting is ROOT. If you can't be bothered with partitions, just leave it as it is. The 3.5″ disk will then resemble a 5.25″ disk prepared on a 1571 drive, except that it holds more.

This brief mention of 'partitioning' is for those who have not met the idea before. But if you feel fazed by it, do not worry; you need never use it. With, say, VIZAWRITE CLASSIC, there is not much advantage in swopping one long directory for several shorter ones. VIZAWRITE lists the directory in alphabetical order. To find a file begining with, say, 'H', you hit the 'H' key, once the directory is on screen. The directory scrolls upwards and the name of the first file beginning with 'H' is highlighted. You can then pick the file you want by moving the cursor down those beginning with 'H'.

Will *Super 81 Utilities* copy commercial software? I have not tried it with protected software. It is not sold as a 'nibbler'. It did make a perfect copy of VIZAWRITE CLASSIC . . . a program not protected against copying, but unable to run without VIZA's special cartridge in place.

Is it simple to use? Yes. A moderately-literate operator could use the more usual facilities (e.g. disk copy; file copy) without the manual. One merely picks the correct 'option'. And it is possible to revert to the previous menu by pressing the ESC key. So you can back-track if you head down a wrong trail.

To recap: forget about Partitions, Disk Editors, CP/M and RAM Writer unless you are specially drawn to them. They are there if you need them. But the less sophisticated utilities are generous in number and scope. They, on their own, more than justify the price. For the 1571 owner who buys a 1581, *Super 81 Utilities* is worth £29.95 for one feature alone: the ability to copy disks and files from one drive to the other. In fact, until there is an abundance of 3.5″ software for the 128, this program (or one offering the same facilities) is a *must*.

P.M.

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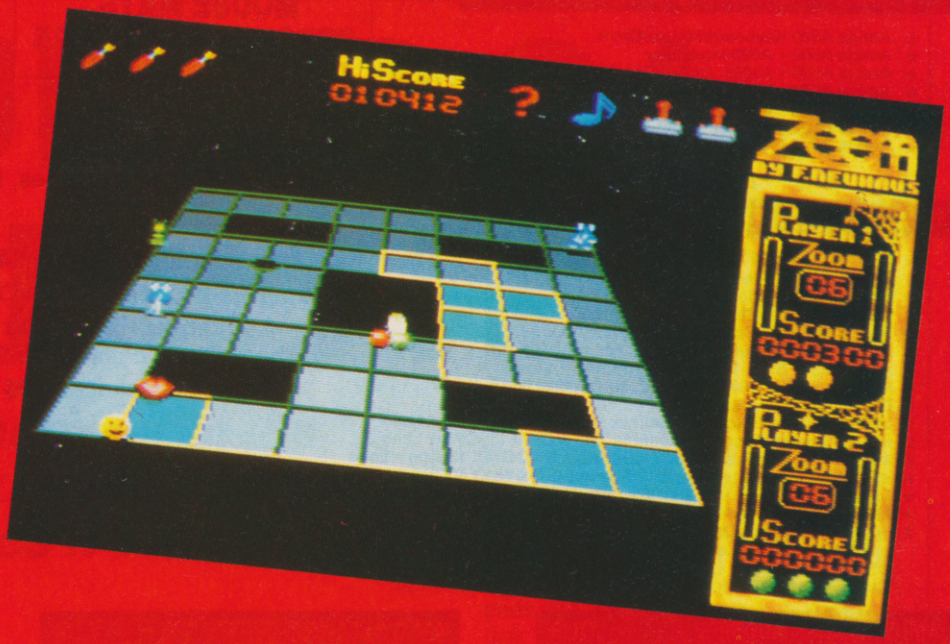
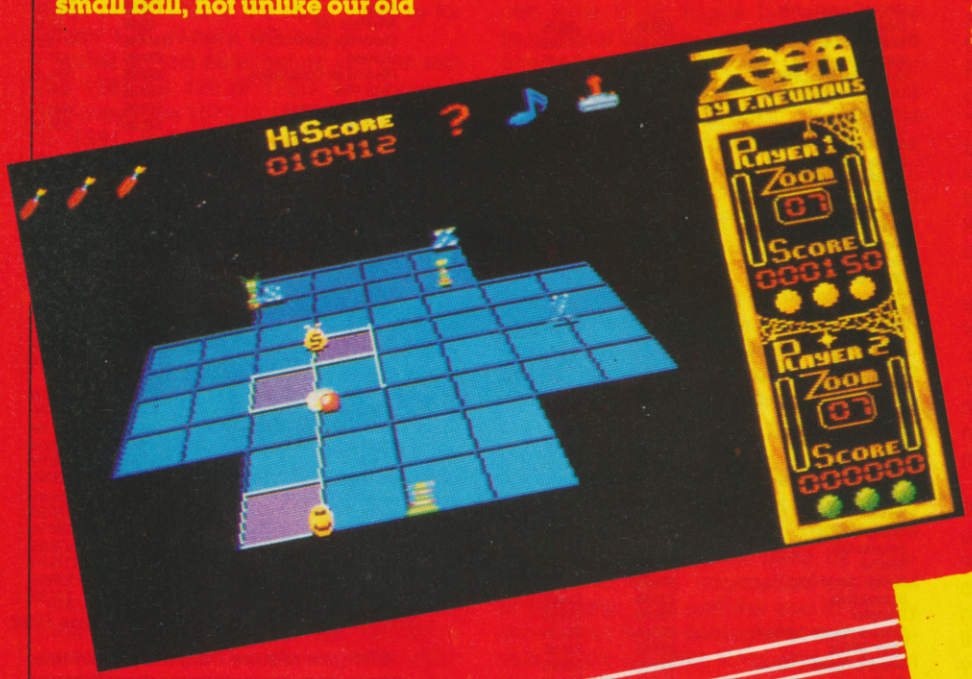
One of the most popular games with the visitors to the recent Commodore show was Discovery's Zoom: a simple game in concept which combines two early arcade games with a few agreeably original features.

A weird opening sequence precedes the game. A bunch of Pacmen strut around a stage performing tricks and generally having a terrifically amusing time. All this is accompanied by sampled cheers and hoots from the audience and a fittingly strange tune. At the Show, people watched fascinated for ages. When you have had enough of that you can load up Zoom!

There are three modes to choose from: one player, two player and two player competition. Two player mode has the players alternating turns in the usual way. Competition mode puts both into the game at once. Your on-screen hero is a small ball, not unlike our old friend Pacman but bouncier. Instead of eating dots, he has to fill in every square on the current grid by drawing trails around them. Anyone familiar with Amidar or Potty Painter will be instantly at home and thoroughly enjoying him or herself. For this is certainly a game that will appeal across the sexes – and to judge again from the Commodore Show, across the age groups too.



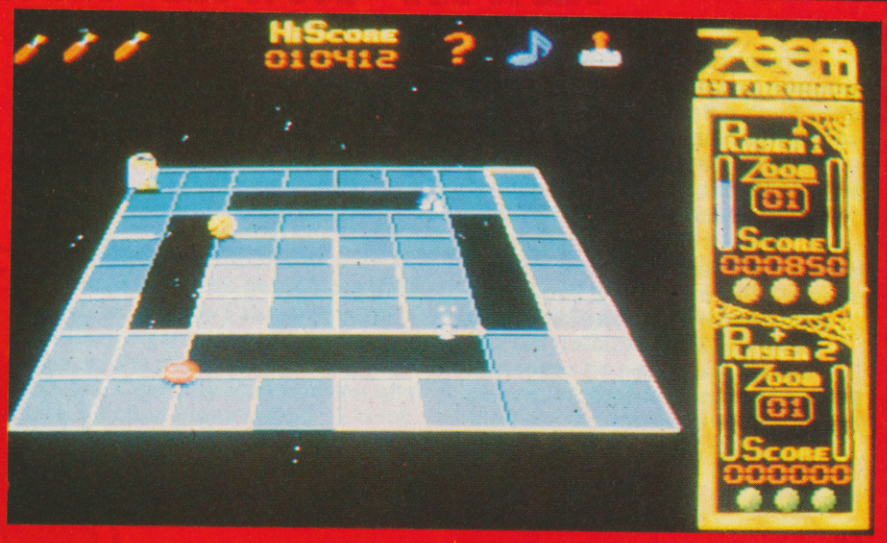


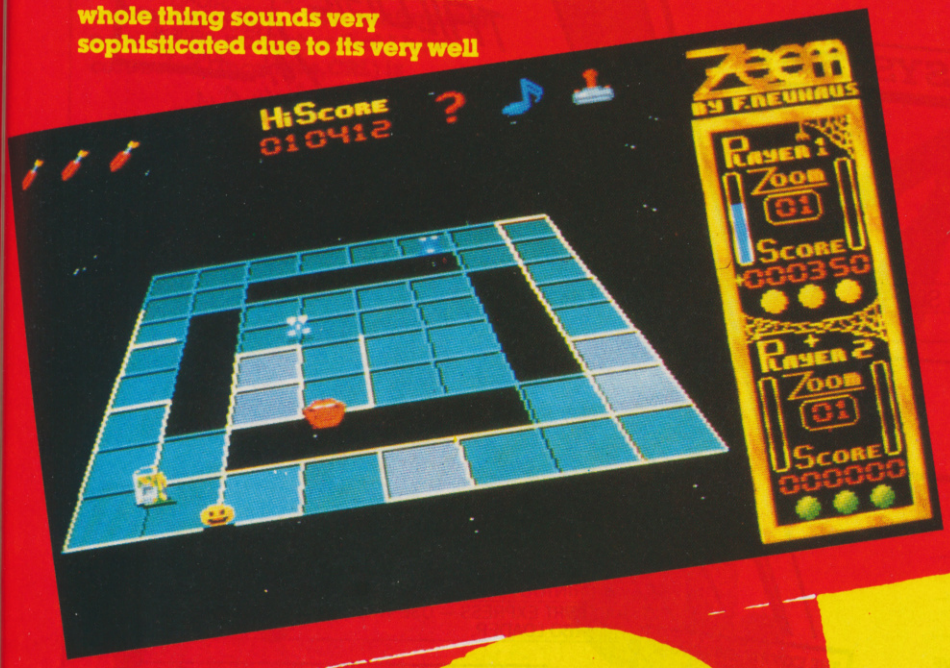
"This is certainly a game that will appeal across the sexes – and to judge again from the Commodore Show, across the age groups too"

Floating around the grid are a selection of nasties to be carefully avoided. The merest brush with an alien causes 'Pac'

to pop immediately, losing a life. There is a whole series of bonuses that, when they appear, give you extra points, help by freezing the aliens, make it possible to advance levels and so on. Your best and most effective defence against the aliens is to knock a small hole in the grid, giving time for you to make a getaway. Unlike the original painter game, Zoom is played in 3D, not a feature that alters the gamplay but it makes an extremely pleasant change and enlivens the whole look Zoom!

To spruce up the game, some very attractive graphic and sound effects have been included. The whole thing sounds very sophisticated due to its very well





a square without it filling in. Strange.

In a similar style to Arkanoid, Discovery's last game, Zoom is really a souped-up version of an established game design, and none the worse for that. It has a quality, present in Arkanoid, that can draw you back time after time, as evidenced by the way it magnetised the players to return whenever it was up on our Amiga stand at the Commodore Show. The most unlikely shoot-'em-up fans clearly felt its alternative challenge.

ZOOM

sampled effects and synth music, most of which is exceptionally expertly created. One odd aspect that crops up now and again is the way you can totally surround

I can see that Zoom will be popular with anyone who likes the classic games. It undeniably has that magic addictiveness that those games possess. Zoom is a very good example of its type, so give it a go if you like the sound of it. Recommended.

B.V.

Graphics: 7
Sound: 8
Playability: 7
Value: 7
Price: £19.95

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Adventure

BY ANDY MOSS

COMMENT

Welcome to another chapter in CCI's book of adventure, the biggest adventure column of all the home computer magazines. First off, I am dedicating the whole of this month's comment to a letter I received from martyn Westwood (he wrote Dance of the Vampires which got very high marks from me remember, and also sent me his newie, Dead End for review. He also sent the games to various software houses for appraisal). It is a sad testimony to the attitude of publishers who not so long ago were crying out for new talent. He also has some good points on my Role playing versus text adventures debate. Over to you Martyn.

Dear Andy,

In relation to the game I sent you for review *Dead End*, I can confirm that no software publisher that I have contacted (Incentive,CRL) is interested in the game. I can only feel very frustrated and disillusioned, not because they might find my games to be of a low standard, but because they have adopted a policy of not evaluating software that is sent to them when it has been written using a commercially available utility. In some ways I can understand this, after all would you be willing to wade through the mass of poor games they must receive, and even when they have published a game using a utility, they have not been of a very high quality.

Even so, I believe software publishers are leaving a "risk" market to the Americans and the dedicated adventure companies (Mag Scrolls and Level 9) and concentrating on sure fire winners of the arcade field with games like BMX NINJAS etc. For me I can only carry on selling my games at £1.99 from home, whilst still writing new material. Currently I am working on a science fiction game called "A Dark Sky Over Paradise" which will be my best 64 game to date. If an Amiga version of GAC comes out, maybe my commercial success lies there.

On the question you posed in the June issue, relating to graphics, I feel the answer will come only in the next two years, with the advent of 16 bit hardware. A cloud I do see coming is the arrival of Role playing games like Phantasie 3. From my experience, all these games involve is killing monsters, buying weapons, killing monsters ... a very tedious business and I only hope that conventional interactive fiction continues untainted.

Yours, Martyn Westwood.

I find it hard to believe that people like Incentive who, let's face it, started the whole thing off releasing GAC and publishing the "best of the crop", will not even give Martyn the time of day. So what if it has been written on a commercial utility (their utility!) If the adventure is good enough why not give it to a programmer to convert. That is what happened to Rod Pike with Dracula and Frankenstein, Wolfman and Pilgrim (released by CRL). Short memories do not popular make chaps, so come on Ian Andrews and Clement Chambers how about it eh?

ADVENTURE NEWS

ADVENTURE NEWS

DARK CASTLE ON 64

Mirrorsoft have now released Dark Castle on 64 disk at £14.99. This arcade cum adventure was well received on the Amiga, and has travelled across to the 64 with no apparent injuries. More for platform lovers than role players.

MEDIAGENIC SHOW MICROILLUSIONS

Mediagenic (the new name for Activision) having signed up

Faerytale creators Microillusions, are releaseing new titles for August one of which will be *Land of Legends*. This traditional role player features 3D dungeon and overland views, while going into overhead view for combat. All the usual features like passages, pits, rooms and inns are present, and the news is that superior graphics are the order of the day. It will be reviewed accordingly.

Wasteland (both reviewed next month) will be a game called Necromancer, based on the award winning novel by William Gibson.

JOURNEY THROUGH HELL TO THE LAND OF LEGENDS

EA SIGN INTERPLAY

A move, which once again proves that Electronic Arts are committed to adventure in a big way, comes with the signing of one of my favourite American adventure Houses' Interplay Productions. They are the creators of many great text adventures like Borrowed Time, Mindshadow and Tass Times, and of course their award-winning role players Bards Tale I, II and III. Mark Lewis, European Director of EA said: "Interplay has grown to be one of the premier software developers in the fantasy role playing marketplace". Interplay plan to release a minimum of 4 to 7 products a year, and one of their next projects after Bards III and

continued on page 64

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continued from page 62

EA AND SSG INCREASE UNION

In a bid to increase the service for customers, EA are releasing SSG's in House magazine RUN 5 which is written to support the users of SSG's products. Apart from featuring game updates and a question and answer column the main purpose is to publish extra game scenarios for the design kits included in SSG programs. Run 5 is published quarterly and issue 9 can now be obtained from EA for £2.50.

ORIGIN GEAR UP FOR MORE LAUNCHES

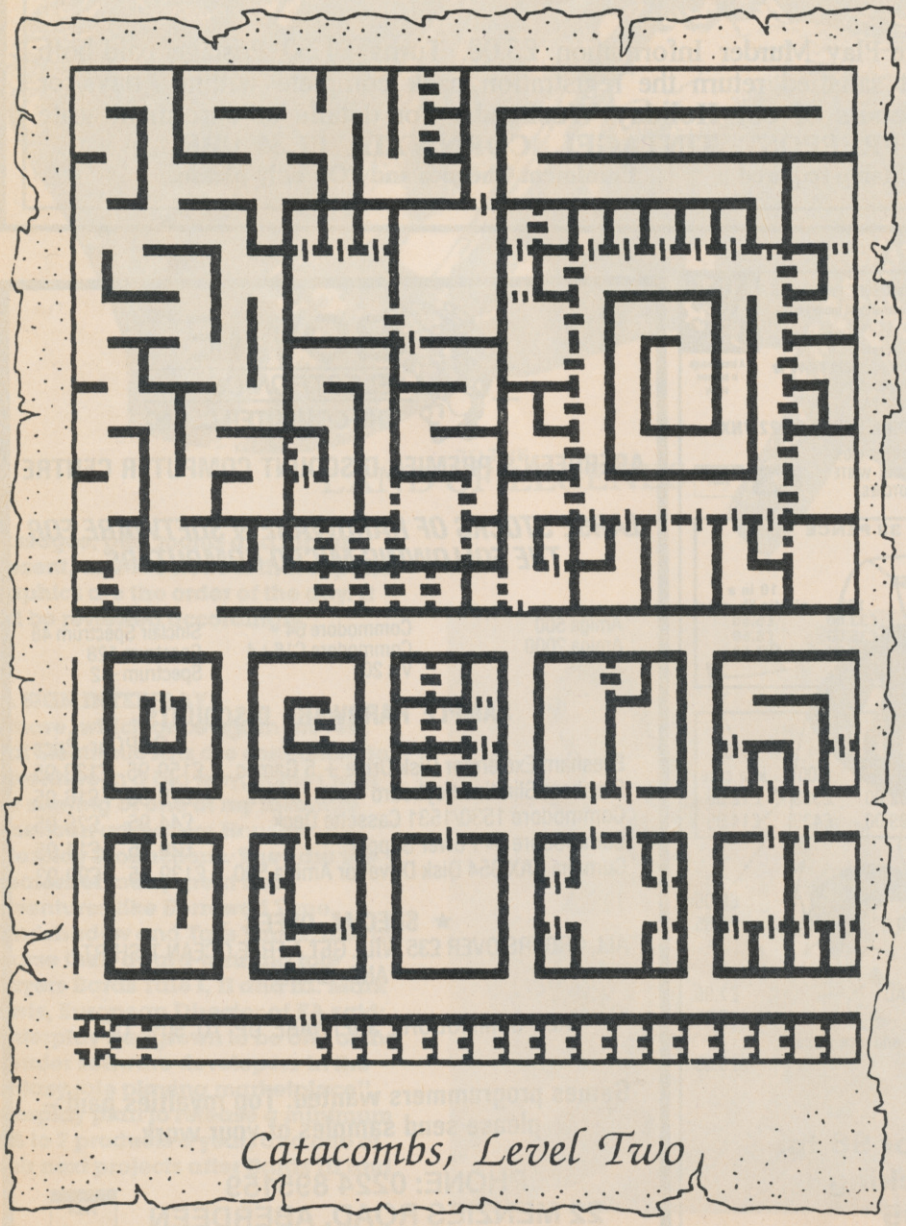
Still waiting for ULTIMA V (it is now finished and is being playtested. Origin are planning quite a handful of major releases, starting with *Times of Lore*, which they previewed for me last week. Following that will be *Space Rogue, Legend, Mobius II and 2400 AD a futuristic Ultima-type game. Incidentally, Ray Evitts, Product Manager told me that they are looking for authors to produce new state of the art fantasy games. Any offers?*

BARDS TALE SOLUTION CONTINUED ... CATACOMBS LEVEL TWO....

We crawl forward, attacked at every turn, sustaining many injuries from sorcerers tricks. There are places here where magic dies – if only we could face Mangar in one of those places we would surely be victorious. An inscription warns us to beware of BASHAR KAVILOR, High Priest, but we take no heed of it, our combined strength and experiences thus far have readied us for anything.

That said, we met him and he proved to be a mighty foe indeed, killing one of our warriors. We dispatched the Dragon that guarded Bashor Kavilors treasure and we filled our pockets to the brim with it.

A bodiless voice screamed ... "TO THE TOWER FLY, A MAD ONE DIE, ONCE LOST THE EYE". Both eyes if we have our way! Andreas as scryed a place of danger here where men stay frozen for all time. It is to the south west of the contorted tomb. We will avoid the area. We descend the stairs in the south east quadrant of these catacombs towards level three and we no not what ... TO BE CONTINUED.



Catacombs, Level Two

ADVENTURE LETTERS

Deary Andy,
I hope you can help me, for the last 4 months I have tried to pass the Dragon in The pawn but nothing has worked so far. When I say everything I mean everything and nothing works for me. You are my only hope.
Steve Jones,
Holland

There is no doubt that The pawn has a fantastic amount of players, and is still proving popular. Steven, have you tried examining the rest of the cave? You will find other creatures there. The dragon is a bit short sighted, so try highlighting someone else, and then you divert the dragons attention so you can slip by.

Dear Andy,
I have been reading your Adventure column since November, and here in Turkey we see you as a doctor. Tell us how to get past the hedge and the hunter and his lassoo in Knight Orc. God save Adventure!
Bora Esinci,
Istanbul

OK Bora, here is my tonic. Use the mat to place over the hedge for protection. The hunter, you need to dismount from his horse, by getting the rope tied together and then tying it between the two signposts at the crossroads. When he comes along he will get knocked down! Regards Dr. Moss.

PLEAS FOR HELP DEPARTMENT. IF ANY READERS CAN HELP THE GROWING LIST OF FRUSTRATED ADVENTURERS WRITE IN WITH CLUES.
David McKain cannot find the last treasrue in Wizard of Akyrz, and doesn't know what to do with the Grail in Quest for Holy grail ... Yes

Guild is worth the money!! ... Les Darby is stuck in the Maze of Dread in Bards Tale II. What is the answer to the riddle ... Paul in Manchester has completed all of Driller except the red mining area – he can't get in to it ... Danny Quinn can't get anywhere in Venom and can't go south in THE HELM....

HERE IS THE COMPLETE SOLUTION TO FAERY TALE AS PROMISED COURTESY OF ROGER MYHRE AND PAUL HUFF WHO BOTH SENT IN SOLUTIONS

In the beginning you start at the village Tambry. Go and pick up everything you can find including a jade skull which kills everything on screen. Make your way to the graveyard (SE) go in and wait to be attacked. Fight through the fence and you can kill them without getting hurt yourself! When you have amassed 250+ points, and ate and slept you can carry on. Make your way to either Watch Tower or Turtle Point, and there you will find a seashell. Go to the edge of the water and "use" shell, after a few moments a turtle will appear and carry you over all the water. Go to the Isle of Sorcery on turtleback, and enter the Crystal Palace (blue key). Talk to the sorceress and she will give you the first statue. Keep talking to get 50 luck points. The next statue is at the castle at Seahold (white Key). To get the Magic Wand you must find the cave in the mountains of Frost. The cave has four guardians one at each point of the compass to help you find it. Once inside you need to map it out, using the gold ring to immobilise the dragon. Once you find the Wand exit the cave and travel to Grimwood to meet the witch. There are lots of caves again to map, as well as the wood, and one cave is the entrance to the witches maze. Follow this until you come to the witches castle, arm yourself with the Wand and go into battle. Once you kill her you will find a Golden Lassoo. Head for Swan Island, there you will find a swan, touch it and you will fly swan power. Fly to the tower midway between Marheim and Seahold, go down the stairs and you will find the Princess. Touch her and she is rescued. Go east and you will come to the priests room (grey key). There is the third statue. Using the swan, fly back to Grimwood, and from the air you will see statue number four. Fly to Hemsath's Tomb where more mapping is needed (crystal orb shows hidden doors and the statue is north east). Fly to Azal in the burning waste and search all the rooms to find a rose. Fly east to land, then walk back to the Citadel. Walk over the lava and touch the blue rock. You will be transported to an astral plain. Eventually you come to a black hole where you suddenly find opposite controls. In the centre here is the Necromancer. Hit him with the Wand and he will drop the talisman. Pick it up to complete the game.

TIMES OF LORE PREVIEW

Last week I was invited by Origin to come and take a look at the nearly finished TIMES OF LORE, which Origin feel is going to do big things for them. First the good news for non-disk drive players, the game is coming out on tape as well as disk, and better still, the main game is loaded in one go. The plot revolves around the Kingdom of Alboreth, where Barbarians are on the rampage followng the King's disappearance. The Steward, who is currently ruling until the king is found is fighting a losing battle with all the Great Lords to unify the Kingdom. Each Lord wants to do his own thing, and the only thing that will blind them all together and defeat the invading hordes is a magical artifact made up from various items that each Lord holds. There is also one Archmage who fancies himself as the true ruler, and at some point you have to decide who to follow as your King. The screen layout is very FaeryTale like, with a sort of overhead view of the preceedings and some very tuneful Martin Galway music. There is a lot more depth and politics in TIMES than Faery Tale, and the conversation routines are very well constructed. You, as a budding adventurer are set many missions to undertake, all culminating in success or defeat for your chosen side depending on whether you guess right or not in who you want as King. The launch is for mid-September, and I for one will be first in the queue.

ADVENTURE REVIEWS

FIDICEN
£1.99 A.D. WILLIAMS

It has taken Mr Williams over two years to write this one, and although there are over 180 locations, he has aimed it at the first time adventurer. The main aim of the game is to return home from this place that you find yourself in. Using a very unfussy screen layout there is a strength meter in the left hand corner which reduces by 1 minimum each move. Eating will restore your strength as will visiting certain locations. The main recognised words can be called up using F1 which is useful in those "guess which word" situations, although I found the EXAMINE command did not recognize key words used in the text. There is a fair amount of character interaction where clues are given to you, and generally speaking it is a fairly easy tale. I think you have used the "push shift" command to overkill and the descriptions are a bit sparse, but as an adventure you have a complete game, and I would buy it for that price.
PERSONAL RATING...6
51 Allport Road, Cannock, Staffs WS11 1DY

CITADEL
David Picking/Kevin Crampton

AT LAST!!! Well done David and Kevin, I firmly believe that with Citadel you have done enough to merit those famous 9 MARKS. It kept me up to the very early hours on some of those puzzles, especially the one on the lead roof, that was real mean. The adventure starts with you placed outside a mysterious looking castle/citadel surrounded by a deep moat, and all you have is a rope. By some careful manipulating, which entails almost getting buried in one place, you manage to secure the means to enter the Citadel accompanied by a Michael Jackson extra from Thriller. That is when your troubles really start. Your descriptions are excellent (I loved the scarecrow waving its arms) typically creepy, and the graphics attractively drawn. Full marks for sticking with it, and as well as sending you some free adventure software and a copy of the DRAGONLANCE atlas (which is truly magnificent and gives you some great maps to follow) I will send a copy of the game to John Barnsley of Soothsayer Magazine who is particularly interested in DIY adventure writers. Well done and another one soon please.
PERSONAL RATING ... 9
DAVID PICKING 186 Corbets Tey Road, Upminster, Essex RM14 2EJ

ONCE AGAIN I HAVE RUN OUT OF SPACE. HOWEVER A TREAT NEXT MONTH, AS I HAVE FULL REVIEWS OF BARDS TALE III AND WASTELAND, AND ... CORRUPTION FROM MAG SCROLLS ... AND A PREVIEW OF ULTIMA V AT LONG LAST ... BUT IT IS WELL WORTH THE WAIT. SEE YOU NEXT MONTH.

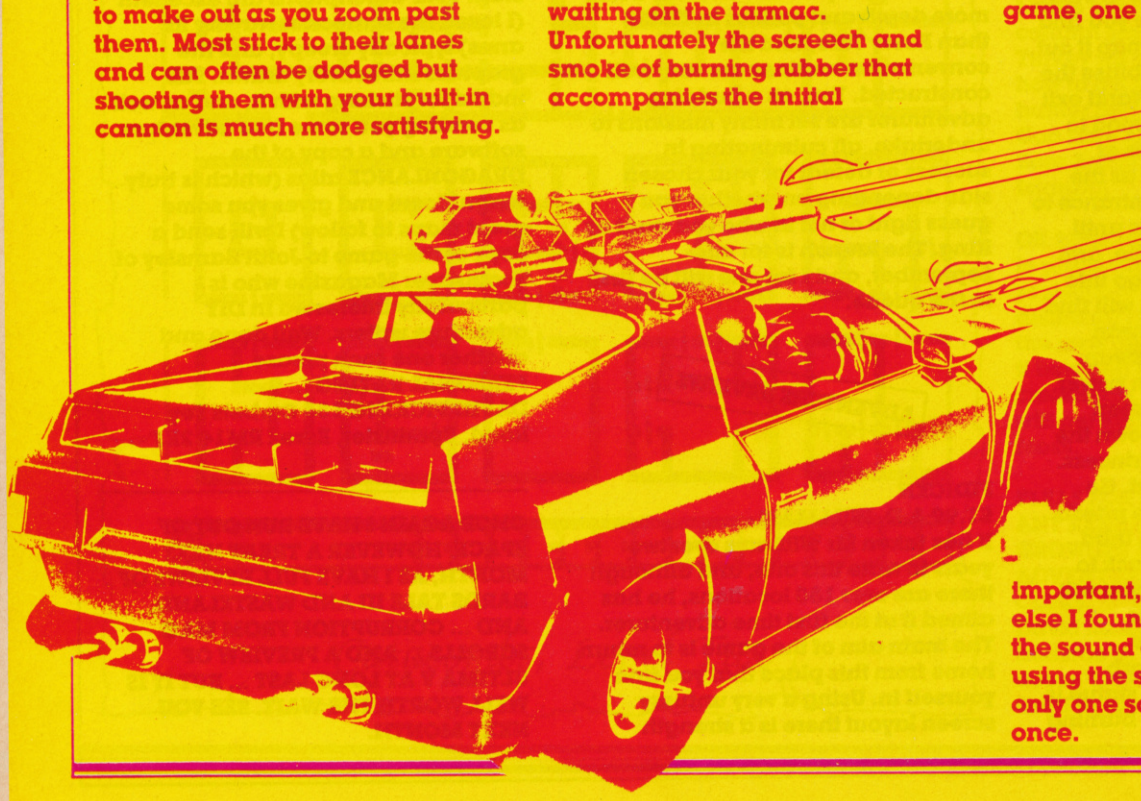
ROAD BL

In the arcades Road Blasters is an easy machine to pass off as a cheap Out Run clone with a bit of shooting thrown in. I know I did just that a few times before realising what it has to offer. In fact, underneath the simple exterior of the coin-op lies a highly addictive game.

In the conversion to the 64 a lot of the original has been recreated, though there are a few black, or rather grey, marks that hold it back slightly. Your transport to take you through the fifty stages of the race is a GWB 68 turbo priced at £234,000, very accurately re-drawn from the arcade machine.

Your objective is to reach the end of each stage before your fuel runs out. Unlike normal cars, it saves on fuel to put your foot down, so slowing down when your tank is nearly empty is no use. Command cars, stingers, rat jeeps and bikes are rather hard to make out as you zoom past them. Most stick to their lanes and can often be dodged but shooting them with your built-in cannon is much more satisfying.

The game begins very well; the starting level selection screen is just like the coin-op, as is the car waiting on the tarmac. Unfortunately the screech and smoke of burning rubber that accompanies the initial acceleration is nowhere to be heard or seen, nor is there any engine sound anywhere in the game, one of a few simple, but important, omissions. Something else I found strange was that all the sound effects seem to be using the same channel, thus only one sound can be heard at once.



Graphics: 62%
Sound: 39%
Playability: 74%
Overall: 72%
Rating: CRISP
Price: £9.99 (c)
£14.99 (d)

Amazing Products are the people behind the conversion, a name you may remember from Out Run. Looking at the road and its scenery it is obvious they have used similar routines but have greatly improved on Out Run. The roadside strips are a lot smoother (and more appropriate) and there is a very nice chequered section at the end of every race. In contrast, the rest of the traffic and hazards still use the limiting character graphics of Out Run.

Taking out the gun turrets that line the road is a tricky business with the standard cannon, a job made far easier with a machine gun. Every now and then a plane flies overhead and drops one of four pieces of equipment to be caught by the car. If you succeed

in this often difficult manoeuvre, the add-on will automatically bolt onto the roof. The shield and machine gun speak for themselves, the nitro-injector gives three bursts of speed and the cruise missile melts any opponents in sight.

All the time your fuel is ticking down on the meter but can be refilled by collecting red and green balls and running over a strip at the halfway stage of the track. Spiky balls are dropped behind enemy cars to blow you up and an indicator on the dashboard warns of mines.

Most of Road Blasters has been very neatly converted. And though there is just the odd detail here and there that lets it down, it is a superior product. For one, corners are driven around without steering. Another is the emphasised perspective on the main car and the total lack of it on the enemy's. Lastly, maybe perhaps it is too easy to get through. Despite these minor criticisms, I still found it excellent fun to play and one of the more faithful coin-op conversions around. There is no doubt it is going to be a winner with most people.

ROAD BLASTERS

US Gold

Features such as the extra weapons, the big smoothly animated car and the oil patches compensate for the minor oversights. The talent is obviously

there to come up with an excellent conversion, and with tighter quality control and playtesting this could have been just such a game. Even so, what is there is still a very, very worthwhile effort that fans of the coin-op will do well to seek out. Recommended.

T.H.

C64

CRISP

STREET FIGHTER

Go!

An interesting situation has occured with the conversion of Capcom's Street Fighter coin-op. Two versions have been written, one in the US and one in the UK. Both are on the 64, so exactly the same limitations have been encounted by both programming teams.

For anyone unfamiliar with the game, it made its mark with its enormous sprites and pneumatic punch pads featured on the arcade machine. It takes you for a trip around the world, stoppng off at Japan, America, England, China and Thailand. This is no holiday; your ticket from one country to the next is awarded after beating up two characters twice each. Your first encounter is with a traditional Japanese karate chopper.

Tiertex, the British programmers obviously had different priorities from the American Pacific Dataworks team. Tiertex have tried to imitate the giant characters of the original by expanding the sprites, leading to a great loss of resolution. Dataworks have intelligently gone almost to the opposite extreme. Their sprites are small but very well drawn and detailed. A similar situation concerns the backgrounds. The UK version's scroll left and right a short way, as do those of the original, but the US backgrounds are static. This is more than made up for by the amount of colour and artistic flair shown by the Americans.

Graphics aside, there are still important differences. All the kicks and punches in the US game are clear and easier to access than those of the UK. Both are about equal when it comes to sound, having unremarkable tunes with a few basic effects from the US.

I get the impression that certainly in this case, the Americans are more familiar with the 64 and accept and know how to overcome its limitations – or perhaps have spent more time and effort on it. Tiertex have settled for scruffy graphics and gameplay in order to get the size. Their choice of colours adds to the confusion with characters merging into the backgrounds, leaving behind and muddled mass of pixels.

Neither versions sport anything new or totally original to make them leap out from the crowd. While America's game has been programmed neatly there is no getting away from its unoriginality, though it will certainly be thought enjoyable by many players. There are probably better examples of its kind, and for that reason one could not recommend Street Fighter in too extreme terms. Think of it as the US version with the UK game thrown in rather than two games for the price of one. Combining ratings for both versions would be meaningless, so I have just rated the far superior US game.

T.H.

Graphics: 85%
Sound: 65%
Playability: 64%
Overall: 69%
Rating: CRISP
Price: £9.99 (c)
£14.99 (d)

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Charts

Chart chatter

Will nothing knock it off its top spot – ever? Ocean/Imagine's Target Renegade looks rock solid at Number One for the third month running – especially with most of the biggie releases being locked up and under guard till the Autumn leaves start to fall. There is just one fast entry that might shake Ocean's grip on the peak of the 64 games – GO!/US Gold's (We love the double barrelled names, don't we?) mega-rated Bionic Commando. This excellent coin-op conversion looks the one to play when the weather drips down your neck. (Sorry if you are reading this in Greece or the South of France and frying under some merciless sunshine!). Epyx' Impossible Mission slides up a place to Three and Gremlin's goodlooking Skate Crazy forces its way in at Number Six. It replaces Gremlin's last month Charter in the same spot – Venom Strikes Back which seems to have faded out. The two other new entries are Mirrorsoft's Dark Castle and GO!'s Bad Cat – both 64 versions following on their Amiga successes.

In the cheapos, ACE zooms up from Five take the Top Spot and there are hundreds, yes hundreds of games now under £2 (and some of them overpriced at that!) Encore's (Elite's really) Airwolf is another fast riser, entering at Two. Firebird have their newie Beach Buggy Simulator (a simulator for a beach buggy? Will it replace Gunship?) drive in at Number Five.

The inevitable happened – of course, that's why it's inevitable – and E.A.'s Interceptor took off fast and landed right at Number One, hitting the Top Spot on its first flight out. It will be hard to shift, goes the chatter on the street. But the old/new faithful Football Manager II (Will there be Son of Football Manager yet?) is, of course, in the Charts again. Will it stay there for another five years like FM I? The other fresh face for the Amiga Dimension is another Footie, Peter Beardsley's International Football from Grandslam. Yes it is the world's and the hooligan's favourite sport. So why should computer players be any different?

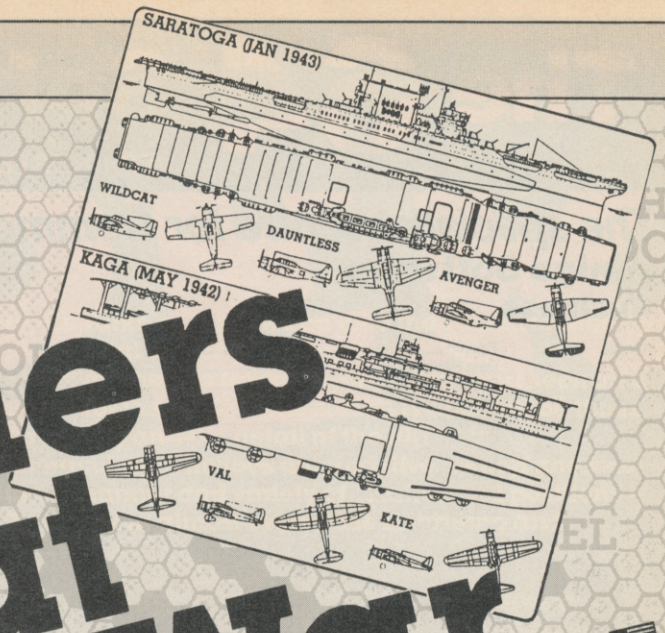
	GAME TITLE	COMPANY	PRICE	RATING
C64				
1	Target Renegade	Ocean	£9.95	Mega
2	Bionic Commando	GO!	£9.95	Mega★
3	Impossible Mission II	Epyx	£9.99	Crisp
4	We are the Champions	Ocean	£12.99	Mega
5	Pacland	Grandslam	£9.95	Mega
6	Skate Crazy	Gremlin	£8.95	Crisp★
7	I.O.	Firebird	£9.95	Mega
8	Bad Cat	U.S. Gold	£9.95	Crisp★
9	10 Great Games	Gremlin	£9.95	Mega★
10	Dark Castle	Mirrorsoft	£9.95	Iffy
Budgets				
1	Ace	Cascade		
2	Airwolf	Encore★		
3	Steve Davis Snooker	CDS		
4	Yogi Bear	Alternative		
5	Beach Buggy Simulator	Firebird★		
Amiga				
1	F/A-18 Interceptor	Electronic Arts	£24.95★	
2	Football Manager II	Addictive	£19.95★	
3	Aaargh!	Melbourne House	£19.99	
4	The 3 Stooges	Mirrorsoft	£24.99	
5	Peter Beardsley's International Football	Grandslam	£19.95★	

★ NEW ENTRY

C64

MEGA

Carriers at War



Upon opening the usual SSG packaging for Carriers at War, I was pleased to discover that the authors were Roger Keating and Ian Trout, the creators of Reach for the Stars, one of my favourite wargames, so I knew I was in for a treat. The game itself is centred around the fleet carrier operations in the Second World War, including the battles of Pearl Harbour, Midway, Coral Sea, Eastern Solomons, Santa Cruz, and the Philippine Sea. The game is run using menus, which conveniently sit on the right hand quarter of the screen, with the game map occupying the other three quarters. There are 30 menus in the game part of the program alone, so it is a blessing that there is a flowchart supplies with the game, so the player does not get lost. As well as the flow chart, maps and two manuals are supplied, a game manual and a design manual. Half of the game manual is in fact an introductory tutorial, which guides the unfamiliar player through the Japanese wipe-out at Pearl Harbour (very satisfying, I might add...). Initially, I found the game very slow and laborious, as I spent a couple of hours plodding through the tutorial. Once you are used to the game, the menus are surprising easy to use and informative (I keep on wondering that if the game had been written a few years later, if the menus would now be windows?) And after playing quite a few games, I am even glad they exist.

The game is the most detailed wargame that I have ever come across, with an infinite number of variables affecting movement, combat, and information. Realism and detail are two very highlighted factors of this wargame, and I cannot think of ANY detail or possible variable that has been left out. For example, each land base has: assigned squadrons, heavy AA, light AA, spot number, damage status, airstrip type, radar type, AA accuracy, damage control, fighter facilities, bomber facilities, port facilities, and a search pattern, all of which (and a few others!) have been defined. Some interesting factors include an administration rating for squadrons, as well as the usual experience and exhaustion ratings. The strategic complexities brought on by this number of variables is vast, making the game approach realism from an admiral's viewpoint, something to which no other wargame has come close.

The game allows you to take the role of any commander who took part in the actual battle, or you can control all the forces on one side of your choice. In theory, because there can be 6 commanders on each side, 12 people could actually play the game at once, using team work. (In practice, though, this game takes a long time to become accustomed to, so it would take a lot of time and effort to organise and arrange, and the end result is not that rewarding. Two players, one controlling each side is the absolute best option, mainly because it is more fun to see your opponents face...)

The best part of this wargame is the design kit provided, which allows you to create your own scenario, and is powerful enough to recreate, theoretically, any World War II sea theatre. Every single variable can be defined using this tool, and maps can be easily created. Again, an introductory tutorial is provided, which is very helpful. You can also use the design kit to change the enclosed scenarios, and possible variations are given in the manual. The design kit itself is excellent, my only qualm being that it can take a long time to recreate historically a scenario, because of all the data which has to be entered, but it allows you to use any of the provided scenarios as a skeleton, which reduces creation time.

The only thing in which to criticize the wargame is the fact that every time the game clock is stopped/started the disk is accessed, which slows the game down considerably; especialy as the clock is automatically stopped every hour when a battle is in progress. Overall I found this wargame very enjoyable, as I have often been able to change the course of history and help the Japanese win the Second World War, often totally crushing the Americans, which is fun, to say the least!

I am not so sure as to recommend it to the novice wargamer, because of the initial detail and complexity, but it is definitely recommended for the experienced player. Personally, I enjoyed using the scenarios provided, with the pretty map, though the sound leaves a lot to be desired (many of the noises were straight from Reach for the Stars). If you want a carrier type wargame, then my only advice is to buy Carriers at War, because it is the best that I have yet seen.

R.G.

Detail: 100%
Complexity: 95%
Playability: 80%
Overall: 91%

Rating: MEGA
Price: £18.95 (d)

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Top Down

VYPER

Now this is what I call an all-action game! In essence, Vyper is really a souped up new version of that all time classic, Galaxians but what it lacks in originality, it more than makes up for with excellent animation, superb sound and a verve that knocks spots off most other Amiga games.

A one or two player game, Vyper offers no less than 25 different alien types (the Yarks) coming at you in 100 varying waves. One of the joys of this game is that you can elect to start with any of the first 80 waves. Progress beyond the 80th swarm can only be accomplished by your own skills.

You start with three Vyper space fighters: once they are wiped out, the game is over. A bonus Vyper is awarded for every third wave that you survive. Your ship can only move left and right along the bottom of the screen and its sole weaponry is a single-shot cannon. Control is by joystick or keyboard.

An initial options screen shows you all the Yarks in glorious animation (but not their full range of colours – you will see those when you start fighting) and lets you select your starting wave, have a one or two player game or view the high-score board (the top 80 players). In a two player game, each player

takes it in turn to control a Vyper – there is no simultaneous play. Do nothing at the options screen and the game will eventually take off into a demo mode, just to let you see what you are up against.

The game is played against a black background liberally sprinkled with multi-coloured stars that scroll swiftly and smoothly down the screen. Over to the right of the display, a panel supplies such information as wave number, score, ships remaining and a handy reminder of the pause, toggle sound and quit wave commands.

Each wave of aliens swoops on to the scene in a different manner and varied flying formation – and by heavens, do these fellas move! On some of the waves, you will barely believe your eyes at the speed of the Yarks as they swarm onto the screen to take up their initial attack positions.

The animation is the slickest I have ever seen on a game for the Amiga (the screen is updated 60 times a second) and the detail of the aliens is immaculate. The foes dip and dive, swoop and swirl in all manner and variety of clusters and positions – the effect in almost every case is thrilling and

stunning. Sometimes the screen is so teeming with life and movement that it is all too tempting just to sit back and feast your eyes as the Yarks rain down their red-tipped bombs and blow your ship to smithereens!

"The foes dip and dive, swoop and swirl in all manner and variety of clusters and positions – the effect in almost every case is thrilling and stunning"

And that is not all. As well as being graphically brilliant, Vyper also comes out tops in the sound department, too. There is no music but there are bags of stereo sound effects, all first class and adding superbly to the already exciting atmosphere. Hook your Amiga up to a stereo system for the best effect.

Vyper is faultless and totally addictive. It may not have the most novel gameplay but, by golly, it comes up trumps in every other sphere. If you want great sound, brilliant animation, fast and furious action and a game that thoughtfully gives you the option to tackle almost any part of it in any order you wish, regardless of skill, then Vyper has got the lot. All gamesters should have at least one top-notch shoot-'em-up in their collection and for Amiga owners there can be no doubt what game that should be – Vyper. Go get it and get blasting!

B.C.

Graphics: 9
Sound: 9
Playability: 10
Value: 10
Price: £19.95

ALL TIME GREATS

We felt it was time to take a few looks back at the none-too-distant past to pick out the all time greats of our computer world. David Bishop is one of the very top UK games designers and reviewers. CCI asked him for the ten games he would choose as his all time greats.

'Everything is relative' said Einstein, but the great man might have been tempted to add some small-print to his second law had he been asked to come up with his all time top ten computer games!

Having been involved in either selling, designing or reviewing games since 1980, almost pre-history in computer game terms, I have had the opportunity to play literally thousands of the things on every console or computer that has come, and often gone, like chips in the night.

Cue ten second giggle/silcence (delete where necessary depending on your point of view) for historical artifacts such as Oric, Dragon, Intellevision, QL, Enterprise, Colleco, and others. Some, like old cars, simply became outdated, others promised the earth but failed miserably to deliver even a handful of top-soil. A few were simply pitched either at the wrong price or simply appeared at the wrong time – contrast the failure of Colleco with the enormous success currently being enjoyed by Nintendo.

Other machines have rolled with the punches and survived. The Atari VCS console is still with us, over 20 million of them to be precise, and it is now selling for about a fifth of it's original price. The Spectrum, in its many guises, still dominates volume sales on the British scene. But even these stalwarts may be threatened by a massive Japanese tidal wave carrying the Nintendo and PC Engine towards our shores.

With so many changes in the complexion of the hardware scene over the years, it is difficult, to say the least, to make a fair comparison between say a VCS game that was brought out in 1981, and an Amiga game only recently released. Patently one cannot compare them simply in terms of graphics or sound. But a good game is a good game is a good game regardless of the technology on which it is based. The computer, to a certain extent, becomes merely a vehicle for a good design.

So, in deciding what games to include in a top ten, I have tried to recall the impact each had on me at the time of its release, rather than make a straight comparison based on today's terms. Don't forget, this is purely a personal view. You may agree with some of my choices and laugh at others. If you want, send in your own top ten and we shall try and include it in our letters page.

Please note that I have quoted the dates when I first played the games and have listed the machines on which I played them. The suppliers are those that were selling the games at the time. Since then, many of the titles have been converted to other computers and some are available through other companies – these are shown in brackets.

Number 1:
Name: *Dungeon Master*
Type: *Role-playing*
Supplier: *Mirrorsoft/FTL*
Machine: *Atari ST (about to arrive on the Amiga)*
Date: *February 1988*

The latest and greatest of my top ten just has to be Dungeon Master. For years role-players have looked down their noses at the computer industry's weak attempts to tame the gendre. At the same time, many mainstream game players have considered the fantasy and role-playing worlds of Dungeons and Dragons et al, as the rather esoteric domain of hairy aging ex-students who spend all their waking hours painting lead figures!

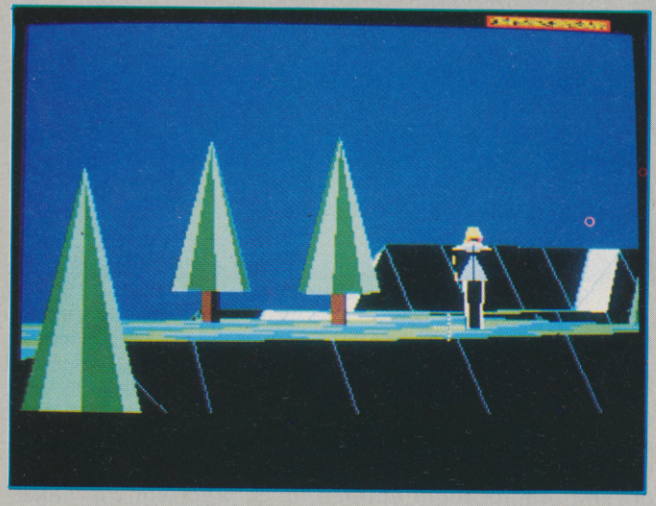
What was desperately needed, and what Dungeon Master provided, was a game to bridge the gap between the two gaming fraternities. DM has all the essential ingredients of a good fantasy role-playing game: an elegantly simple magic system, plenty of characters to choose from, each with his or her own strengths and weaknesses.

The game is set in twelve dungeon levels, graphically depicted and packed full of some of the most devious puzzles and traps you could hope to see (or not see!), and frequented by all manner of creatures from born-again mummies to club bearing stone monsters, giant scorpions, and horrendous pink worms straight out of a horror version of Dune.

Once you enter the dungeons, the game takes you by the scruff of the neck and never lets go until either you die or reach your goal which lies hundreds of feet below. It's the kind of game where you look up and find it is the middle of the night and everyone else went to bed hours ago! Positively the most atmospheric and absorbing game ever, this one will take a lot of beating!

Number 2:
Name: *Sentinel*
Type: *Arcade*
Supplier: *Firebird*
Machine: *Commodore 64*
Date: *January 1987*

When winding up his review of Sentinel, a well respected writer in one of the Commodore 64 specialist magazines of the day refused to give the game a percentage mark as he said it was above being graded.



A little pretentious perhaps, but anyone who has played Sentinel may be able to understand the sentiments behind such a gesture. When grading a game, you are naturally comparing it with others you have played. But Sentinel is unlike any other game; it cannot be pigeon-holed into any particulra category, it is neither arcade nor strategy and yet draws on all that is good in both.

Most important of all in this day and age of idea cloning and coin-op conversion, Sentinel is a wholly original game, one of only a precious handful to have graced computer screens over the past four or five years.

Number 3:
Name: *M.U.L.E.*
Type: *Trading Simulation Arcade*
Supplier: *Electronic Arts*
Machine: *Commodore 64*
Date: *February 1985*

Imagine an economic strategy game where success owes as much to hand-eye coordination and quick thinking as it does to strategic planning! Imagine a game as complex to master as chess and yet as simple to learn as draughts!

Imagine a game that lets four people compete and yet forces them to cooperate. Imagine a game that attracts both strategy players and arcade freaks. You have just imagined M.U.L.E.

Of all the games I have ever played, this has to be one of the most perfectly designed and cleverly balanced. The sleeve claims an impressive 3,500 hours were spent on testing and tuning the game – it shows!

By developing resources and developing plots of land, each player must try to make as much money as possible in the twelve rounds of the game. But there is a catch because you each form part of a colony which must, as a whole, achieve a certain monetary level in order to survive. The more selfish each player is in his or her pursuit of wealth, the more the colony is placed in jeopardy.

Sadly, when M.U.L.E. was released over here by Ariolasoft, it died a death; a fate all too common to products of this nature, especially those that don't give that initial graphical 'rush' considered so important in the UK.

Still M.U.L.E. is one of the those games that I keep coming back to because you can guarantee that every game will be different from all the others you have played. An expert game lasts about an hour and a half and I estimate that I must have played about 200 of these over the years.

Number 4:
Name: *The Pawn*
Type: *Graphics Adventure*
Supplier: *Magnetic Scrolls/Rainbird*
Machine: *Atari ST*
Date: *May 1986*

The Pawn first saw the dim light of day as a text only adventure on the QL. Remember the QL, the computer with the detachable keys that disappeared from our lives in far less time than it took to arrive through the post!

But although the Pawn enjoyed an almost cult following amongst QL owners who, let's face it, had very little else to smile about, this excellent adventure only really hit the spotlight when the now legendary Magnetic Scrolls graphics were added to the newly converted Atari ST version.

Although the graphics, which are quite superb, were undoubtedly responsible for the initial success of the ST version, the game has continued to sell well on almost every computer there is, with or without graphics. The reason is that first and foremost it is an extremely well-written, humourous and challenging adventure with an excellent parser and many tricky puzzles.

Number 5:
Name: *Leaderboard (inc. Tournament and World Class)*
Type: *Sports Simulation*
Supplier: *US Gold/Access*
Machine: *Commodore 64*
Date: *September 1987*

The release of Leaderboard provided me with one of the best lessons I have ever learnt about computer game design – "Give the public what they want, not what you would like them to want".

To explain – having spent over a year toiling over Golf Construction Set, in the belief that what gamers wanted was a really accurate golf simulation, I was gutted to discover that what they really wanted was a golf game that was reasonably accurate but was, above all, easy and simple to play. They didn't care about the hardness of the ground or the slope of the fairway; all they wanted to do was select a club, aim, and hit the ball. And they were right! While my own GCS gathers dust on the shelf, I play World Class Leaderboard with friends every Wednesday night!

Although Leaderboard has been around in various guises for a number of years now, the World Class version, which incorporates extra features such as punch shots and aerial views, is more demanding and feels more realistic than previous incarnations.

A measure of the product's durability is that it still keeps cropping up in poles and charts when many highly hyped products, from only a few weeks before, are already long forgotten. You can already play Leaderboard on sixteen different course and whose to say that number will not be doubled in a couple of years time?

Number 6:
Name: *Miner 2049er*
Type: *Platforms and Ladders*
Supplier: *Big Five Software (US Gold)*
Machine: *Atari 400/800 series*
Date: *November 1983*

Although many people on this side of the Atlantic would like to believe that Matthew Smith's Manic Miner (whatever happened to MS anyway?) was the original 'platforms and ladders' game, nevertheless at least two American p&d games appeared quite a while before MM was ever heard of.

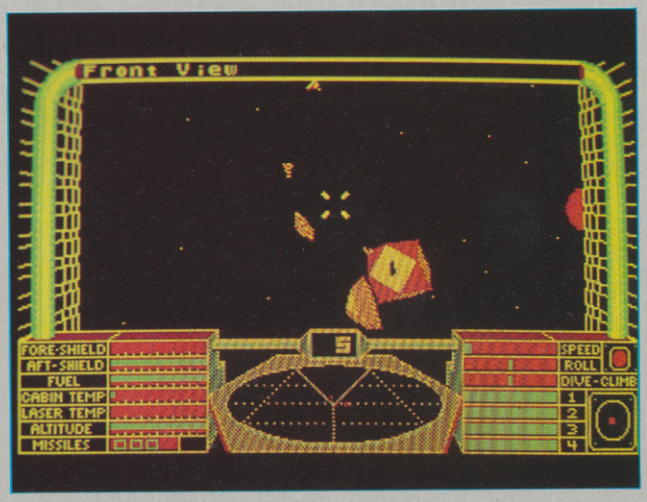
The games in question are Broderbund's Loderunner and Big five's Miner 2049er. It is difficult to ascertain which came first but both are horrendously addictive, both spawned sequels, and Loderunner, along with EA's Pinball Construction Set boasted one of the first ever level editors.

In terms of all time greatness, Miner just gets my vote because every one of its ten, highly addictive, screens are very different, each offering some new piece of equipment to use, and each demanding new skills of the player.

Miner was one of the first games to go platinum in the States, and, interestingly enough, was the first game where each different version was licensed separately to different companies.

Number 7:
Name: *Elite*
Type: *Arcade Strategy*
Supplier: *Firebird*
Machine: *Commodore 64*
Date: *July 1985*

Anyone around at the time couldn't avoid hearing or reading about this phenomenon which had taken the BBC gaming fraternity by storm. Having never owned a Beeb, I, along with thousands of other C64 and Spectrum owners, had to wait patiently for Firebird to oblige with conversions for our machines.



Apart from being one of the first games to use vector graphics, Elite had that certain something that always had you loading that disk at every conceivable moment.

Looking back, the gameplay was fairly repetitive, so where was the hook? The answer lay in the fact that continuing success in the game, either from profitable trading or accurate blasting, gave one the chance to better oneself. Interestingly enough, it is precisely the same thing which devotees of role-playing games, such as Dungeons and Dragons, find so compelling.

So, faced with the prospect of being able to accumulate ever increasing bundles of credits while advancing through the ranks, hundreds of thousands of Space Heroes, myself included, spent months attempting to gain that ever illusive rank of 'Elite'.

Number 8:
Name: *Deja Vu*
Type: *Graphics Adventure*
Supplier: *Mindscape (Mirrorsoft)*
Machine: *Apple Macintosh*
Date: *June 1985*

The summer CES show in Chicago was notable for a number of reasons. On the software front, an up and coming new publisher, Mindscape, was proudly showing a new style adventure game called Deju Vu running on Apple's latest wonder computer the Macintosh.

Although the game has since been converted to the ST and Amiga, neither version comes close to the graphical prowess of the original which used the Mac's resolution format to the full.

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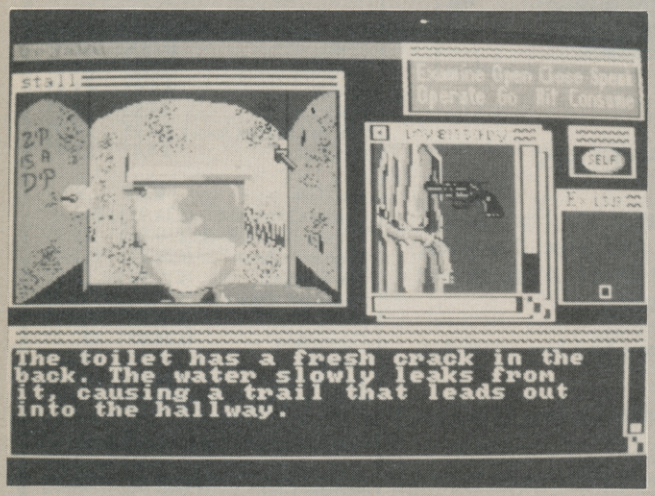
Apart from the 60 or so amazingly illustrated locations, Deja Vu caused such a stir because of the way in which the game was played. Unlike all adventures that had gone before, here was one that needed little or no text input, relying almost entirely on mouse control and eight icons that could be activated in various combinations which covered almost anything you might want to do in the game. For example, to unlock a door with a specific key, you simply had to click on the 'operate' icon, then on the key you wanted to use, and finally on the door itself in the location picture.



At last, there was a game where you did not have to struggle to find the right words before being able to achieve something you knew was right. In terms of design, Deja Vu is simplicity itself, although as an adventure it is, even today, every bit as engrossing and challenging as most parser-based ones.

Number 9:
Name: *Atic Atac*
Type: *Arcade Adventure*
Supplier: *Ultimate*
Machine: *ZX Spectrum (48K)*
Date: *April 1984*

Remember the days when a full-price game cost a modest £5.50 and owners of 16K Spectrums began to realise what a mistake they had made? On a dreary spring afternoon I wandered into some kind of Microfare in Westminster Hall and discovered, amongst all the trestle table exhibits, a game where you could wander from room to room collecting and using objects as you went.

Now this may not sound much now, but then it was revolutionary. Atic Atac was arguably the first multi-location arcade adventure. Set in a haunted mansion, it contained 151 rooms spread over five floors linked by stairs, trap-doors, and secret passages.

Many of the ideas to be seen in hundreds of games since were first seen in Atic Atac. For example, locked doors were coloured either yellow, green, blue or red, and could only be opened by keys of a similar colour. Many objects could be picked up and, if you could only work out where, were useful in helping you delve deeper into the mansion. You could even play the entire game as either a serf, a wizard, or a knight, each having access to a unique set of secret passages.

Atic Atac was the first game I ever mapped and probably the first game released that needed mapping. I explored the mansion, to the exclusion of all else in life, for about three weeks. When I eventually found the final part of the golden key and triumphantly escaped through the main doors of the mansion, I was greeted by probably the biggest anti-climax I have ever experienced in a computer game. The screen simply read 'Well Done'!

Number 10:
Name: The Hitchhiker's Guide to the Galaxy
Type: *Text Adventure*
Supplier: *Infocom*
Machine: *Commodore 64*
Date: *May 1985*

No top ten would be complete without including at least one Infocom adventure. One of the true evergreens of the software world, they have consistently managed to come up with games crammed to overflowing with imaginative text and cunningly crafted problems fit for any Mensa expert.

Being a Douglas Adams fan and an Infocom fanatic, Hitchkikers was either going to live up to all my expectation or be a dismal disappointment. Happily, Infocom and Adams combined to produce a first class adventure that captured the bizarre humour of the radio series to a 'tea' (in joke!).

Having constructed my improbability drive, Arthur Dent set off on a series of mini-adventures where he suddenly became Trillian, Ford, Zaphod, and eventually Arthur again, and all in search of five bits of fluff. The experience of meeting oneself at a party that one had previously visited as someone else, was disturbing to say the least!

While still drawing heavily on characters and places from the original series, the game took the adventurer further than the radio listener had ever been, thus avoiding the cop-out of merely re-hashing the original story.

Brimming with hilarious text, and full of the wierdest puzzles you could hope to find. Hitchhikers still remains for me one of the best conversions of a story to the computer medium, and represents the pinnacle of Infocom's notable achievements to date.

There were many other games that nearly appeared in my top ten, so for the record, here are numbers 11 to 30:

11)	Flight Simulator II	Amiga	Sublogic
12)	Batman	Amstrad	Ocean
13)	Revs	C64	Firebird
14)	Loderunner	C64	Broderbund
15)	Pitfall	Atari VCS	Activision
16)	Interceptor	Amiga	Electonic Arts
17)	Knight Lore	Spectrum	Ultimate
18)	Boulderdash	C64	First Star
19)	Psion Chess	ST	Psion
20)	River Raid	Atari VCS	Activision
21)	Tetris	C64	Mirrorsoft
22)	Bugaboo (the flea)	Spectrum	Quicksilva
23)	The Hobbit	Spectrum	Melbourne House
24)	Loco	C64	Alligata
25)	Uridium	C64	Hewson
26)	Way of the Exploding Fist	C64	Melbourne House
27)	Archon	C64	Electronic Arts
28)	Impact	ST	Audiogenic
29)	Tennis	Intellevision	Mattel
30)	Impossible Mission	C64	US. Gold/Epyx

HORGAN'S HINTS

I recently received a letter from Andy Grifo who suggested among other things that I ask you to come up with a few out of the ordinary pokes, a bit different from the usual infinite lives. It just happens that I had the same idea, the result of which is below. Silly pokes are more likely to win the monthly prize of a subscription, T-shirt and 10, the weirder the better!

C64

International Soccer (cassette or disk only)
Bored with Liverpool vs. Chelsea, England vs. France? How about Lilliput City vs. Pygmies United? These pokes take out the instructions that expand the sprites leaving them in their midget state. Enter them by resetting after loading.
POKE 2392,234
POKE 14415,234
POKE 33048,234
POKE 45071,234
SYS 32807

Great Giana Sisters
All it takes is this poke from Stephen Logie and you can have an infinite number of sisters at your disposal. Reset after loading and enter:
POKE 8257,173
SYS 2098

Draconus
A couple more from Mr Logie for help with Zeppelin's latest goody. Reset the game before typing:
POKE 10953,173
POKE 9926,173 (infinite lives)
POKE 5426,173 infinite fire)
SYS 2058

Ramparts
Run this listing from Faisal Patel before loading the game to play with infinite energy.

```
20 PRINT CHR$(147)

30 FOR B=1024 TO 1060:READ
A:POKE B,A:NEXT B

40 SYS 1045

50 DATA 169,13,141,184,8,169,
4,141,190

60 DATA 8,76,46,8,169,173,141,
107,54,76

70 DATA 5,12,32,86,245,169,0,
141,100,8

80 DATA 169,4,141,101,8,76,16,
8
```

Red Led
All manner of helpful cheats are available with this listing from Faisal Patel.

```
1 READ B:POKE 16896+S,B:T=T+B:
S=S+1:IF B<>74 GOTO 1

2 IF T<>632 OR 5759 THEN PRINT
"ERROR IN DATA":END

3 PRINT "DATA OK"

10 DATA 160,160,162,0

11 DATA 142,118,169,169,141,
63,85,141,87:REM INFINITE TIME

12 DATA 142,177,76,169,96,141,
57,170,141,153,166:REM
INFINITE ENERGY

13 DATA 142,67,77:REM KEEP
LEVEL OPEN

14 DATA 142,121,85,142,55,86:
REM AUTOMATIC SMART BOMBS

15 DATA 142,89,171:REM BADDIES
FROZEN

16 DATA 140,159,84:REM IMMUNE
TO ACID

17 DATA 140,23,85,232,142,24:

REM ROBOTS IMMUNE TO ACID

18 DATA 169,169,141,15,141,84,
85:REM WATER TO ICE

19 DATA 76,0,74
```

Jet Boys
Another of Faisal Patel's listings, this time for infinite lives.

```
1 FOR X=320 TO 367:READ
Y:C=C+Y:POKE X,Y:NEXT

2 IF C=5260 THEN POKE
157,128,:SYS 320

3 PRINT "DATA ERROR"

4 DATA 32,86,245,169,81,141,
245,3,169,1,141,246,3,96,72,77

5 DATA 80,169,94,141,86,5,169,
1,141,87,5,76,0,4,169,96

6 DATA 141,2,118,169,173,141,
52,94,169,240,141,238,94,76,19
0,92
```

Samurai Warrior
Henrik Gelius tells me that if you type **CHEAT** in the high score table you will start on the second level.

Cauldron II
Up to 255 bouncy pumpkins can be selected by resetting and typing:
POKE 36152,x (where x is the number of pumpkins)
SYS 32777

Dropzone
Henrik forgot to include to restart address for this one, but Action Replay and similar cartridges will do the job without it.

POKE 2316, bombs (up to 255)
POKE 2460,255
POKE 2465,255 (infinite lives)

Bounty Bob
Type 57502 and press F3+A at the same time. Now type the level upon which you want to start (1–25).

Hercules
These pokes from Phillipe Burgess will give an endless stock of lives. Enter them after resetting the game.
POKE 6257,32
POKE 6258,0
POKE 6259,192
POKE 49152,169:POKE 49153,3
POKE 49154,133:POKE 49155,30
SYS 2304

Starquake
Here are a few more from Phillipe Burgess to make life easier for failed Blobs. Load and reset the game to enter them.
POKE 3661,169 (unlimited lives)
POKE 19161,169 (unlimited cloud platform)
POKE 9559,169 (unlimited ammo)
POKE 3546,234:POKE 3547,234 (unlimited energy)
POKE 4614,96 (remove all enemies)
POKE 12540,1 (game runs at faster speed)
SYS 3075

Exolon
A bundle of pokes to lessen the strain in a variety of ways, once more from Phillipe Burgess. Don't be greedy and enter them all at once because you'll crash the computer.

POKE 7427,234:POKE 74281,234:POKE 729,234 (infinite lives)
POKE 7651,234:POKE 7652,234:POKE 7653,234 (infinite bullets)
POKE 5179,173 (disable enemies)
POKE 5234,173 (doubles the game speed)
POKE 5212,173 (protection against big gun bullets)
POKE 5215,173 (protection against red blobs)
POKE 5218,173 (protection against missile launched bullets)

SYS 2061

Yogi Bear
Unlimited energy comes your way thanks to David Griffiths and this poke:
POKE 6478,0:SYS 2067

cont. on next page

HORGAN'S HINTS

Ninja Hamster

Now you needn't take a beating from those ferocious fluffies, just:
POKE 18480,173:SYS 16435

Wizball
Andrew Murdock sent me this little cheat: on the title screen, hold down the number of the level you last completed to restart at that level in the next game.

Driller
For an indestructible shield, shoot the southern end of the ground in Obsidian. Thanks go to Andrew Murdock for that one.

Star Paws
Enter this listing from Ed Saunders for an ever-full stomach.

```
3 FOR I=10497 TO 10526:READ
A:POKE I,A:C=C+A:NEXT I

4 FOR I=512 TO 519:READ A:POKE
I,A:C=C+A:NEXT I:IF C=3988
THEN SYS 10505

5 PRINT "DATA ERROR!":STOP

6 DATA 169,2,141,5,84,76,1,82,
198,157,169

7 DATA 0,162,1,168,32,186,255,
32,189,255,32

8 DATA 213,255,78,215,8,76,32,
8,169,96,141

9 DATA 186,23,76,0,16
```

Target Renegade
The Code Hunter's hack will give infinite time, lives and a level advance option activated by the C= key.

```
0 REM CODE HUNTER HACK FOR
TARGET RENEGADE

1 FOR A=2816 TO 2922:READ
B:POKE A,B:C=C+B:NEXT

2 IF C=11407 THEN SYS 2816

3 PRINT "ERROR IN DATA":END

4 DATA 162,89,189,17,11,157,
128,1,202,16,247

5 DATA 162,255,154,76,128,1,
32,86,245,168,144

6 DATA 141,240,3,169,1,141,
245,3,76,167,2

7 DATA 169,32,141,84,3,169,
162,141,85,3,169

8 DATA 1,141,86,3,76,0,8,169,
176,141,111

9 DATA 1,169.141.112.1.173,
18,208,96,169

10 DATA 0,141,133,135,169,173,
141,121,141,169,199

11 DATA 141,212,128,169,1,141,
213,128,76,0,38

12 DATA 173,1,220,48,10,173,6,
2,201,4,176

13 DATA 3,76,56,130,32,50,163,
96
```

The Eidolon
This listing from Casey Gallaher will come in handy for players of one of the best re-releases to appear in a long while.

```
10 FOR A=320 TO 383:READ
A:C=C+B:POKE A,B:NEXT

20 IF C<>6983 THEN PRINT
"ERROR IN DATA!"

30 PRINT CHR$(147)"INSERT
TAPE, AND..."

40 SYS 320

500 DATA 169,1,170,160,0,32,
186,255,169

510 DATA 0,32,189,255,162,1,
160,8,32

520 DATA 213,255,169,76,141,
242,3,169

530 DATA 102,141,243,3,169,1,
141,244,3

540 DATA 76,13,8,169,1,141,29,
19,169

550 DATA 115,141,28,16,76,0,
16,169,173

560 DATA 141,238,92,169,205,
141,78,115

570 DATA 76,0,76
```

C16

Dingbat
M Vainola Jr. comes to the rescue of stressed Dingbats with this cheat:
Once in the monitor, type **M3C63** and change **CE FF** and restart with infinite lives.

Survivors
More monitor cheats from M. Vainola...
M32A3 change **05** to **FF**
M3146 change **06** to **FF**
M3146 change **07** to **FF**
M3262 change **05** to **FF**
M3268 change **06** to **FF**
M326E change **07** to **FF**

Alter the above for infinite energy.

M3297 change 00 for level required (eg. 0=1, 1=2)
SYS 11776

Airwolf
Follow these steps from Steve Bell to stop the chopper from floating downwards:
Enter the monitor and type **M2038**
Change 35 to 39
Press X and return
Type SYS 7633

AMIGA

Spencer Riley supplies this month's helping of Amiga tips.

Insanity Fight
Press both mouse buttons, fire on the joystick and C at the same time to move on to the next screen.

Defender of the Crown
As soon as the words Defender of the Crown appear on the brick wall, press K until the game has loaded for 2048 knights.

Impact
Some codes:
11 GOLD
21 FISH
31 WALL
41 PLUS
51 HEAD
61 JUMP
71 ROAD

Test Drive
Holding down the fire button will take you smoothly around any bend. Release the button to accelerate or brake.

Goldrunner
Start a one player game, crash into the first building and hold down F5 until the status screen appears. You can now fly safely through anything. "I" gets you onto the bonus screen, "U" gets you off.

Spencer Riley gets this month's £10, subscription and CCI T-shirt for his 16-bit contributions. If anyone knows how to activate the cheat mode in Firebirds's Exodus, or the significance of the chicken in Entertainment USA's Street Surfer I would be pleased to hear from them. So who can top my silly International Soccer poke? Think you can? Then get them in to me, Tony Horgan at:

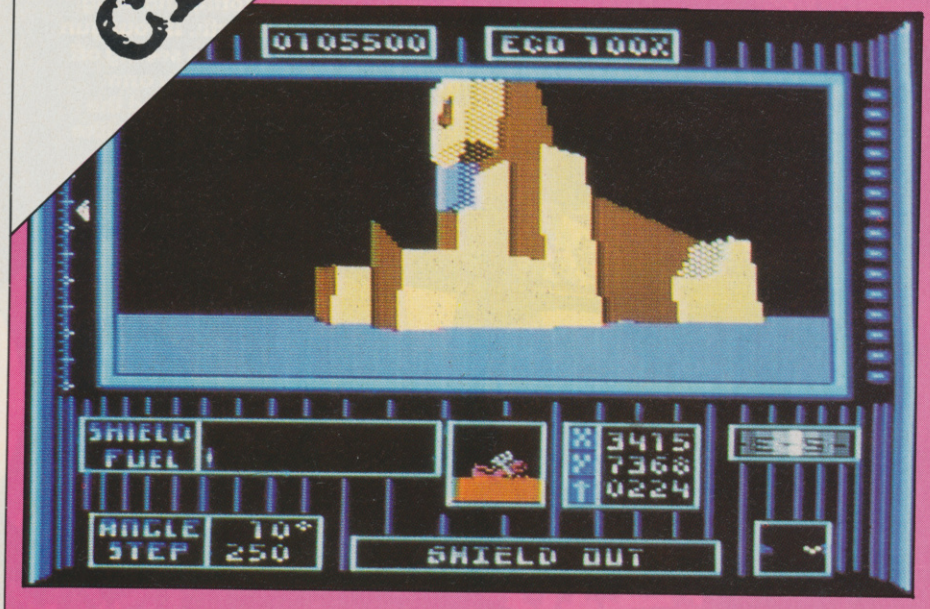
Horgan's Hints,
CCI
40 Bowling Green Lane,
LONDON
EC1R 0NE

C64

CRISP

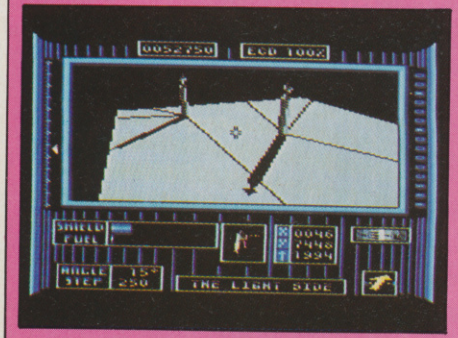
DARK Side

Incentive



Driller was one of the most involving games of 1987, earning itself the CCI Oskar for the most original game of the year. Freescape was the much publicised highly imaginative system it used to simulate the eighteen artificial surfaces of a distant moon in solid 3D. The same system has been called upon for its sequel Dark Side.

Since you saved the planet Evath's moon from exploding, 200 years have passed. Now the Ketars (your life-long enemies) have built a huge weapon known as Zyphyr One and aim to frazzle your home planet. So as not to cause mass panic this fact has been kept a secret between the world leaders who have chosen you to save them.



"To get a better view of things you can fire-up your jet pack, useful for getting your bearings."

This time you take up the challenge on foot with which to begin. Exploring the first section of the moon reveals a few trees, an aggressive tank-like plexor, a large building and a teleport. The best way to find out what things do is to shoot them. Plain blocks usually act as switches, opening doors, removing walls and so on. Other objects or symbols can increase your fuel or shield levels. To get a better view of things you can fire-up your jet pack, useful for getting your bearings.

Your method of deactivating the Zephyr One is not just to find it and zap it, but to break down the network of EDCs which power the weapon. This is done by shooting the crystals from the tops of high towers. As in Driller you have the ability to alter the size of your steps and the angle at which you turn. A U-turn has also been included for speed.

As anyone who has played Driller will know, Freescape is slow, but extremely thorough. I do not doubt that many complicated calculations are being made every second but the delay between joystick movements and on-screen responses can be slightly off-putting. But, of course, anyone who has played Driller already knows that. Freescape might be said to lack versatility, for Dark Side is very much like Driller to look at and to play. But among so many people, I enjoyed the first episode for its originality, atmosphere and adventurous gameplay. Dark Side is really just a repeat performance, with familiar scenery, puzzles and a morbid soundtrack. Perhaps not enough has changed to give the same initial enthusiasm about Dark Side as Driller received.

Nonetheless for anyone who never encountered the first Freescape game and likes the sound of this one, I would recommend Dark Side as there is really nothing to choose between it and Driller. If on the other hand you already own Driller and feel like more of the same, you will almost certainly want to give Dark Side a shot. It would without doubt have got a 'Mega' rating if it has come out first. Incentive has made a real advance in computer game technology with Freescape and there is going to be a growing group of fans for it.

T.H.

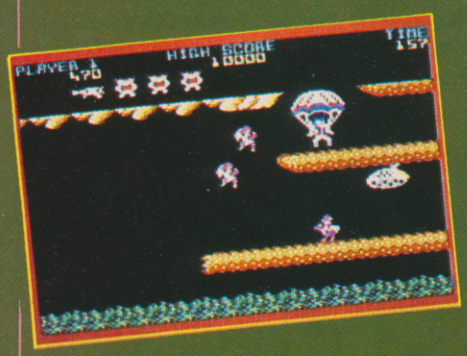
Graphics 68%
Sound: 63%
Playability: 68%
Overall: 66%
Rating: CRISP
Price: £9.95 (c)
£12.95 (d)

A parachute drops you at the start of the game where you can experiment with your amazingly versatile arm. Its most common use is for crossing chasms. For this you can shoot it up to an overhanging branch and swing across to the other side. Leaving it hooked up will cause you to swing back and forth, knocking out anyone in your path. If your gun is proving inadequate in seeing off the enemy, a biff from your arm should do the job. All this and the jungle scenery makes you feel like some space-age Tarzan.

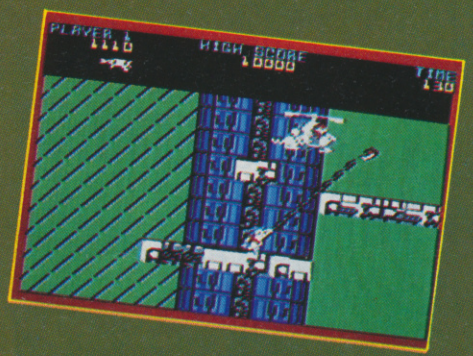
BIO COMM

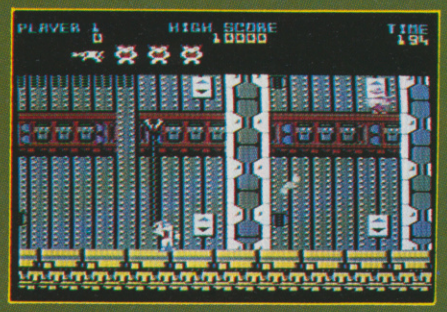
When I heard that Bionic Commandos was to appear on the 64 I could not get my hands on it fast enough. Acting with restraint, not wanting to jump the gun and review a bug-ridden pre-production copy as some magazines appear to have done, at CCI we hung on to give you the verdict on the real final finished and properly terminated version.

Way into the future an alien force are attempting to take over the world. Earth is on the verge of surrender and will have no choice but to do so unless their last hope can succeed.



The Bionic Commandos have been sent on a mission to destroy the enemy HQ. Where they differ from your standard commandos is in their bionic arms, used as grappling hooks as a climbing aid. In a similar style to a past Capcom hit Ghosts 'n' Goblins, Bionic Commandos is set in five levels of multi-directional scrolling platforms. These platforms are subtly blended into the theme of the level; the first is played in a dying forest of tall leafless trees.





NIC MEGA ANDOS

Go!

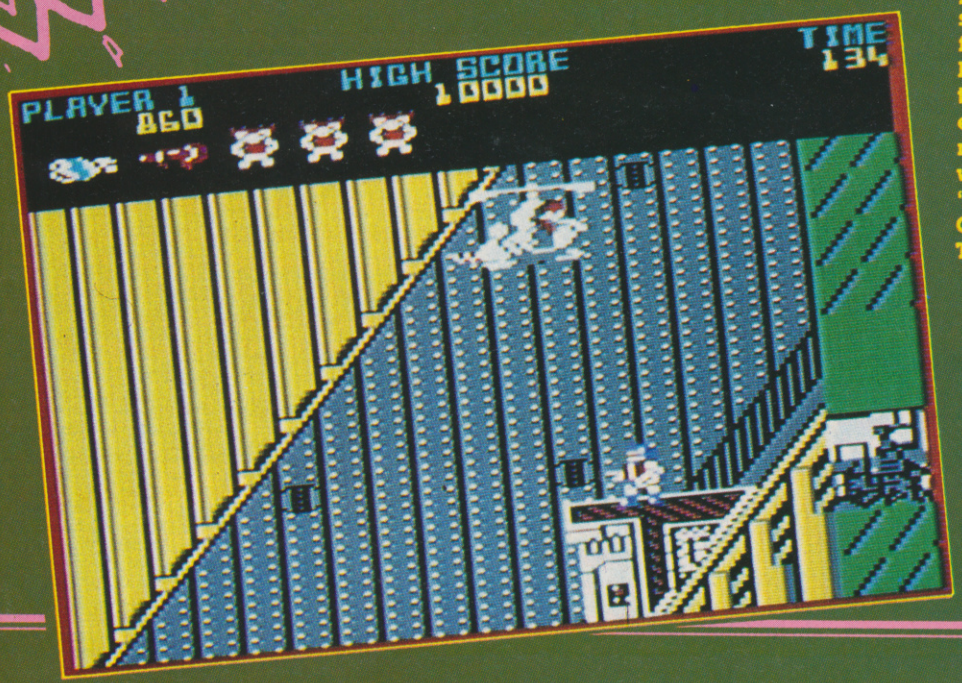
In the first stage a mix of natural and artificial dangers are to be avoided. Soldiers armed with machine guns and bayonets roam the trees, birds flap around and there are cliffs, bee hives and spikes to be avoided. Supplies are dropped in on mini parachutes which can be grabbed and retrieved with your arm to give extra lives, a speedier arm or a weapon upgrade.

Level two concerns the storming of the castle, the base's outer shell. Here the graphics are not as clear as the first, mainly due to the choice of

"If your gun is proving inadequate in seeing off the enemy, a biff from your arm should do the job"

colours. With each stage another excellent soundtrack is introduced together with some substantial variety in the graphics. Level three for example has a huge stomping robot for you to deal with. A multi-load was unavoidable due to the size and depth of the game but this is easily bearable. The addition of some sound effects would have partly compensated for the unclear graphics.

Bionic Commando's graphics are its only real fault. The main character has been neatly drawn and animated in a tough but cute way. Most of the rest are just a bit too hard to make out in places to come up to the standard set by the gameplay.



Swinging around on your bionic arm, plucking extra weapons out of the sky and blasting electronic locks from security doors is great fun. At last it looks as if Go! have got their act together. This is a game that fully earns its Mega rating. With a little more attention to the graphics it would have got that elusive 'Awesome' rating. Bionic Commando (the final version) . . . Terrific! (Really 'armless fun!)

T.H.

Graphics: 60%
Sound: 82%
Playability: 89%
Overall: 88%
Rating: Mega
Price: £9.99 (c)
£11.99 (d)

C64

CRISP

Gremlin SKATE CRAZY

No doubt influenced by the recent success of 720 and Skate or Die, Gremlin have got in on the act with Skate Crazy, a day in the life of a roller skater. (Skateboarding and roller skating are the big craze now.)

There are two parts to the game, one on either side of the tape. Part one is set in a multi-storey car park, temporarily turned into a series of courses to be skated over in a competition. Pairs of flags mark the way around the obstacle-strewn tarmac. Small ramps can be jumped over and used as take-off points for mid-air spins. These impress a panel of judges who hold up score cards to rate your performance.

Cones, crates and bins threaten to transform you into an unspectacular puff of smoke. Mastering the first course will take a while, mostly due to the tight marking judges. Failing to fulfill your quota means you have to collect 21 pieces of litter from around the car park within a time limit. Only then can you skate up to the next level. Alternatively you can continue the game in the second part.

Part two keeps the same cartoon style graphics and a somewhat awkward control method but is very different to play. It is set over four horizontally scrolling levels: a building site, a park, the London Underground and a street scene. Using a rhythmic left/right joystick movement you build up speed before jumping ramps and other obstacles. Litter can be picked up along the way, between dodging angry brickies and babies. This could have been a lot better if the controls were not so fiddly. Too much of the game is spent trying to gather speed in too short a space, ending in frequent wipe-outs.

Some excellent sprites can be found in both games although they are a bit short on animation. Much of the game is very quiet, just a clicky rhythm in the background occasionally broken by some very lively commendable effects. Both sections, although quite different from each other suffer from the same problems: mainly the difficulty level and clumsy controls lead to some frustration. But these are certainly not enough to totally spoil the game, which has on the whole a great deal going for it. It is just a shame that a few easily-rectifiable points are the difference between a great 720 variant and a good one. And this is certainly good enough to recommend. Get it, it's very good value.

B.V.

Graphics: 82%
Sound: 69%
Playability 66%
Overall: 70%
Rating: CRISP
Price: £9.99 (c)
£14.99 (d)

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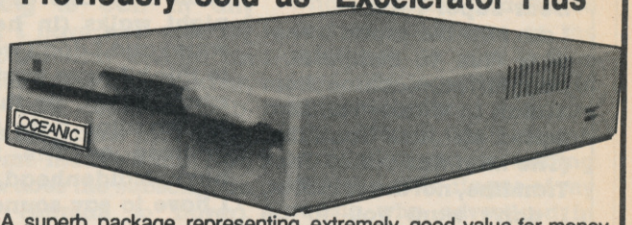

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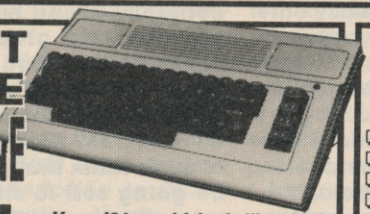

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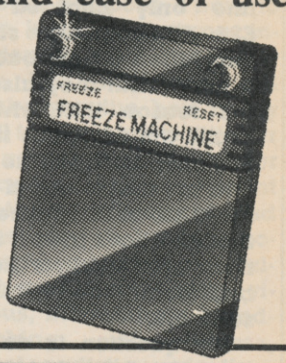

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Dear

Super Felix

Dear Super Felix,
I am now the proud owner of a Plus 46 computer. I bought the machine from a man in a dirty raincoat called Mr Jack Tramline. (The man was called Jack Tramline, not the raincoat. I don't want you to be confused.)

I am very happy with the computer but the trouble is that I have not been able to find anything to run on it. That is except my cat, Kayday. She runs all over it but nothing comes up on my TV screen just the same. It has been a poor summer here at the Equator. Do you think my computer is cold and I should wrap it up in some software. I assume that software is like the underware I buy for my wife Marie Whittacker – Palace who sleeps very badly and likes to go out at night a lot. That is why I bought my CMB computer so I would have something to do while she was strolling around at night. Mr Tramline only charged me £349.99 because he said it had fallen off the back of a lorry. That may also be the reason that when I shake the computer it rattles a lot. Mr Tramline also told me that it would give me a lot of hardware but though I have tried it on in front of the mirror in the bathroom, I don't think it suits me.

My question is do you think that I should take my Plus 46 back to Mr Tramline and ask for my money back? Or should I go on looking at the TV screen in case something comes up on it? (I am not a computer expert but somehow not having any wires to connect the computer to anything doesn't seem quite right. I didn't notice if there were any batteries when I broke it open to see if there were any instructions inside. In fact there was practically nothing inside except half a pair of false teeth, an empty cassette case, a cigar butt and old copy of CCI, which is how I got your address. Please help because my wife will be coming back soon from one of her all night walks (in her software) and I don't want her to think I have wasted the whole night. By the way, Mr Tramline gave me his address as The Switchback, Maidenhead, which I have to say sounds very suspicious.
Yours faithfully,
Liam Anarsull

Dear Liam Anarsull,
I am afraid that you do have a big problem – and I am not talking about your wife's night walks either. Your problem is that you have got the wrong computer. Everyone who has been reading CCI for a few centuries will tell you that a Plus 46 is a waste of time. Commodore launched it only a few days before the Amiga and as they were very short of money at this time they did not have enough proper printed circuits which is why they put in the CCI – The Post Office regards us as printed matter. The cigar is there because everyone was saying that CBM – CMB (it makes the 1-bit Amiga computer/is a totally different company) – had gone up in smoke, and the teeth – not half a pair but the upper set was intended to 'give the machine' 'a bit of bite and class' as a certain Mr Guido Kweeny wrote in PCW (Perverts Companion Weekly). The cassette case is not empty but contains Vapourware which is all many software companies publish. I agree with you that your Mr Jack Tramline must have given a fictitious address. There is obviously no such place as 'The Switchback' unless he lives in a fairground. Ha Ha! Our information is that he has been seen recently in the vicinity of Slough to the west of London. I should hang about on a few street corners there if I were you and ask him to exchange your Plus 46 for an Irata 025 which I believe is his speciality now. (That doesn't have much inside either). It won't go any better than your Plus 46 but probably your cat will find it more comfortable to run over. By the way you did not include your address or telephone number which is a pity because I would like to talk to your wife about night walking which is a pastime I think I could get to like. (What colour software does she wear?) S.F.

Dear Jack Felix,
I am having trouble with my 64 / 128 / PET / Amiga/ Plus/4 / C116/8000 series / PC40-80 computer. When I plug into the I/O the voltface and start the drive shaft entering the kernal pocket, I get textual turnabout and a flicker free. My assembler goes on to manual mode, leaving the RGB on the CVBS. If I take out the DF2 I get an unpleasantly sequentialised file. If I put the boot in (it is, of course, warm) the BASIC tries to DOS the shell program. Formatting the program for easy enter means I have to switch the ALT to CHAR. I have attempted to change the TAB setting but all I get is 7 up on the screen. I have also tried remembering the mnemonic field but I found the editor was Ram-based and it seems that I always end up debugger. What do you think is wrong and do you think you can help me?
Yours sincerely,
James Butterfingers,
Canada.

Dear James,
I don't think anybody can help you. You are a total mess. Whatever possessed such an idiot as you to get into computing in the first place? A death wish? Computer were not meant for dangerous louts like you. They are gentle loving machines who respond to the whistle of their masters just like a well-trained cockroach. What you are doing to that poor CBM machine would make Nick Hampshire turn in his grave. Leave it alone! Stop bullying it! Isn't it enough that it has to live with brutes like you. It's people like you that make my blood boil. Hanging and electrocution is too good for you. If I had my way they would bring back the cat of nine tails for computer abusers like you. And the next time you lay your hands on the poor thing, wear rubber gloves. Who knows what it might catch from you? A virus would be the least of its troubles. And don't write to CCI again! There are magazines for people like you but they are mostly published in Soho in places like Golden Square. Pardon me while I wash out my operating system. J.F.

Dear Tony Felix,
I loved your review of Tony Beardsley's International Tony Roadblaster Commandorgan. It was the best review that anybody has ever written in the history of the universe, except for some others that you have written before. I though you were a bit over generous giving minus 25 per cent for graphics. I mean so they had sprites seven feet tall. I mean so what? Is that so difficult to do on a C16? Some friends of mine think that you may be going soft to stop calling all games Pre-Basic but I think your introducing the new classifications of 'The Programmer Should be Tortured to Death Slowly' or 'The Programmer Should be Tortured to Death VERY Slowly' is a great improvement. Why don't they give you 121 out of 124 pages for your great Bargain Bucket and your simply amazing Hints. I think you should have at least 126 pages out of 124 for your Hints alone. The rest of CCI is pretty much of a drag but your Poker are Def. In fact there are definitely DEF. I really don't know anyone who is Deffer than you. I think they should change the name of the mag from CCI to DTH (Def Tony Horgan). Anyway keep up the good work. (Yes, I think Interceptor is worth the £1.99 they asked for it!)
Yours forever,
T. Horgan.

Dear T. Horgan,
It is really very nice to be

STOP READING MY MAIL!

appreciated by an unbiased person like yourself. I am only trying my best when I write such terrific stuff. I suppose it comes naturally really. I mean some games are all right, I suppose. I haven't played any yet but I mean there might be some one day. As for my new classifications, they are not really much, just another sample of my genius. A company in Birmingham – I can't remember their name – has asked me to show them how to carry out the classification on any programmer of any game I review. Well, intend to review because it will save time reviewing them if I just tell them before I've seen the game that it is no good. So then they can get rid of the programmers altogether, which will be a good thing, don't you think? Just leaving reviewers like me. Well, on second thoughts, no other reviewers, just me. Anyway thanks for your letter. You get the prize of the month for the best letter – I'm sending you the three million T-shirts and million year subsription to CCI (I don't really think your idea of changing the name of the mag is quite right. I think it ought to be TDTH – for Terrifically Def Tony Horgan) and the cheque for £10 billion which doesn't leave all that much in my pay packet this week. And thanks for the Poke. It doesn't matter if it doesn't work but please don't send me any more cheques, I only take cash. *T.H.*

Dear Sandra Felix,
It is not that I feel that you and CCI are persecuting me – though my psychiatrist tells me I may be wrong – but I believe I have waited what some might call an excessive time for the arrival of my subscription to CCI. If you remember, I first contacted you in 1662, when after paying 2000 golden guineas a year for seven years, I still had not received a single copy (you had promised it would arrive by your own stage coach). You told me there was always a slight delay before a subscription was processed. So I waited a further three hundred years until 1962 without receiving a copy. You then informed me that you were changing systems and my subscriber's copy would not arrive later than 1970. I did give it a year another year before writing to you again but you replied in 1975 that the mail had been delayed because the post boy was ill. When in 1980 I asked after his health, you were sad and said he had died after going to Borneo with all the names and addresses. I believe he wanted to be a crocodile hunter. So I sent you, as you requested, in a separate letter from the one in 1983, a registered letter containing my address, age weight, height, marital status (if any) and package containing £16.50 in used £20 notes.

In 1986, when I went to have my haircut in Sicily, I saw a copy of CCI (January 1957) in the barbers. He offered to sell it to me for 27 billion lira. So I wrote to you asking when the first subscription copies arrived to make sure I did not get January 1957. Two weeks later my postman, who has since died of overstrain, delivered 600 copies each of December 1955, February 1956 and March 1956. I did agree with you when you replied in January 1988 to my letter dated December 1986, that I had not received January 1956 and nothing since. I still however wanted a subscription to CCI, though my new psychiatrist insisted that it was a figment of my disordered imagination.

I was therefore surprised to receive yesterday – they let me receive mail here – 11,251 copies of Amiga User International, 2,906 copies of Fitness Magazine, 22,302 copies of BMX Action Bike (August 1941) and 3,756 letters suggesting I took out a subscription to CCI. Though interesting the other magazines do not help me much to study Assembler and Debugging on the C16, which was my original reason for subscribing to CCI. In any case, I have now sold my computer and bought an automatic toe nail polisher. Does your company publish a magazine that might help me master it and how much does the subscription cost? (Airmail to Dover). Thanking you for your help in this matter,
Yours respectively,
Oliver G. Cromwell,
Dover Psychiatric Hospital

Dear Mr O'Liver,
We have no record of you being a subscriber to RAD magazine (previously called BMX Action Bike). We are happy to look through our files for your details but we have a standing charge for this service to non-subscribers £2500 – in Hungarian florints (What is florint anyway?). To be sent to me C/O Poste Restante, Manchester. But perhaps you would prefer to be a subscriber to a more up to date magazine? We re this month doing a special offer on subscription for Commodore Computing International. If a cheque for £12 million and 50p reaches us by last week we will be happy to arrange for a change of address form to be sent you at your new address in Australia. An aunt of mine once lived in Cromwell Road, London. Do you perhaps know her? In the meantime, please do not hesitate to contact me, if you have any problems. We always say that our subscribers come first. Have a good day!

Dear Bully Felix,
Thank you for the confirmation of the advertisment I booked in your magazine. I have to confess I don't remember asking you for 48 pages. I thought I had said wanted eleven words in the Classified pages. Also it seems to be that it is a little too long in advance to reserve this amount of pages in every issue from now till 2103 AD. I think I would have sold my copy of Your Amiga by then. And I don't quite understand the reference to the usual requirement to pay the whole amount in advance and in gold bars or the reference to my broken legs. My legs are not at present broken, I assure you. Also I don't understand what you were doing with the little finger of my cousin who advertised in CCI and later disappeared. Though we did find an ear that looked suspiciously like his nailed to his 128 some months later. I also did not realise I would be charged the telephone costs when I made the call to you. Surely you did not have to buy a solid platinum telephone just for my call? Of course, I understand the urgency in regard to the settlement of my account. The Contras in Nicaragua are indeed in grave danger of not receiving any more millions from the U.S. and I think I understand why so many advertisers have so willingly contributed to your personal fund for the rescue of the Third World from lack of atomic weapons. I have to say, however, that your insistence that I hand over my life insurance and make you the heir in my will is going just a little far in your natural desire for security for the payment for the advertisement. And I assure you I meant nothing personal when I called you a murdering, vicious, bloodthirsty, bloodsucking, evil, ruthless, cruel, sadistic, unfeeling, advertisement manager who makes Attila the Hun look like Florence Nightingale and if I upset you, I humbly apologise.
Yours sincerely,
Hank BrownChaneyWard-CousensByrneStoneStewart StrachanbHallHemran GuptaHawkingsWilcoxBell

Anyone need a Baldock? He's gone! (Probably playing zoom on his Amiga!)

Professor Kate Williams (CCI's Gerontologist) makes old men very happy.

AMIGA

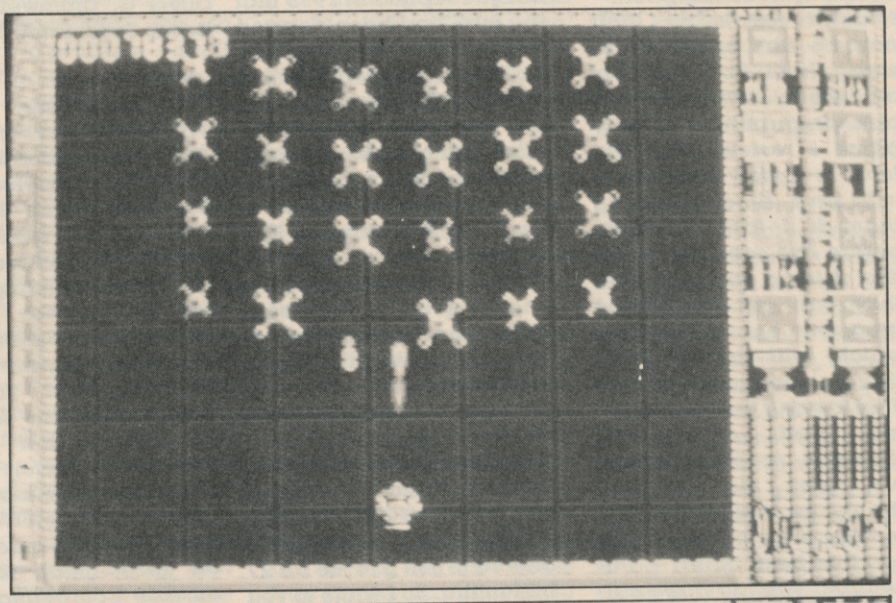
IFFY

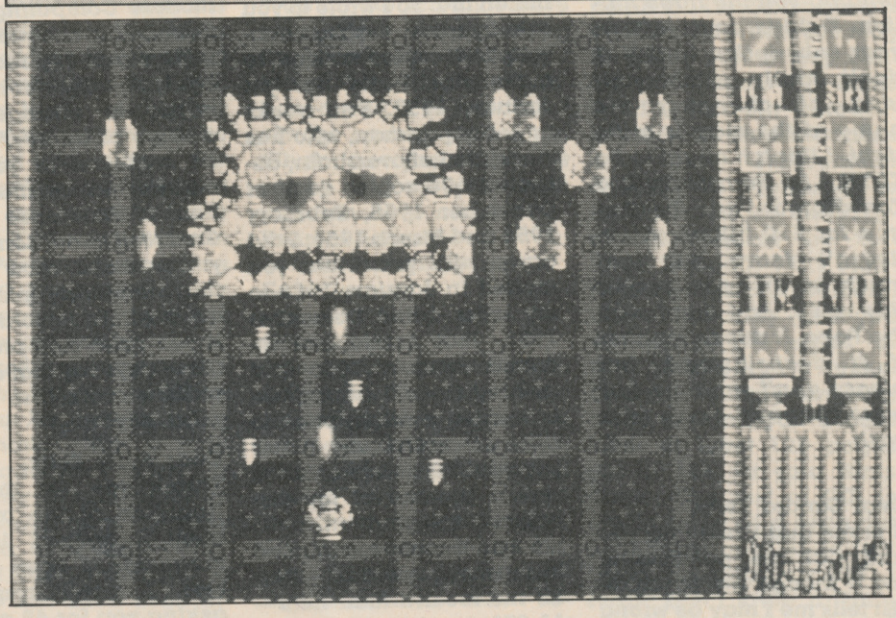
BETTER DEAD THAN ALIEN

Electra

Brad Zoom, the famous world-saving alien blaster is the star of Electra's Better Dead Than Alien. As Brad sits in his dinky little space ship throughout the game, his role serves merely as a subject for the rather nice cover artwork.

As the instruction and mini comic book explain, your object is to zap as many aliens as possible before getting zapped yourself. Well, there's an original idea, don't you think? If you ever wanted Galaxians on your Amiga, this could be the very thing! Starting up the game presents you with a number of rows of unimaginative aliens wobbling slowly to one side. Your ship can move along the bottom of the screen and climb a short way. Most of the game is played just like Galaxians, dodging bullets and the occasional diving aline whilst shooting back at them.





'To avoid playing through the same screens every game, a password can be entered to take you to the later levels'

Clear a few sheets and a big really tasty-looking baddy floats down the screen. One million or so well-aimed shots later it will expire, leaving you to take on another bunch of mutants. Whatever type of alien you are fighting, one part will nearly always be glowing red. The exception is when one turns greens and drops a capsule when shot. Catching this arms your ship with more powerful guns, freezes the aliens or adds a shield to the ship. To avoid playing through the same screens every game, a password can be entered to take you to the later levels.

Strangely enough, the sound is more entertaining than the game. Although the zapping effects are not that different, giggles and gurles liven up the action and a sarchastic round of applause accompanies the high score table.

Underneath the sound, all that is left is a slow, jerky version of Space Invaders crossed with Galaxians. Top Down's Vyper is in a similar style but runs at a much faster pace and is a lot smoother for it. There is a small urge to reach the next screen and the two player mode is a little more fun.

Played on a Spectrum four years ago it would have made good entertainment, but for twenty pounds on the Amiga it fails to hit the mark.

T.H.

Graphics: 48%
Sound: 88%
Playability: 50%
Overall: 45%
Price: £19.95
Rating: IFFY

C64

CRISP

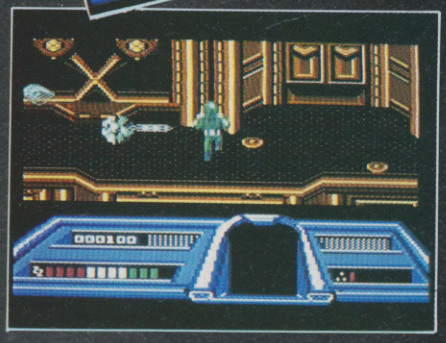
DREAM WARRIOR

US Gold

When you glance through the instructions of any game, these days you expect to encounter a paragraph or two of waffle about the Zargon Universe and their comsitron lasers etc. You soon learn to skip this and get down to the real instructions which are usually pretty straightforward. When it came to Dream Warrior's text, not only did it have the usual meaningless intro but the whole of the rest followed suit. It had me totally lost for ages, but never fear I cottoned on in the end. (It is just that before four o'clock in the afternoon my brain is still in bed snoring!)

To put it as simply as possible, three scientists of the near future have been captured in a state of sleep by the dream demon Ocular. You have been sent in to their dreams to seek out and destroy Ocular and release your colleagues; an idea which certainly sounds original.

Most of the game is played on a set of horizontally scrolling levels. Kitted out in a shiny green space suit and helmet, armed with a laser rifle, our hero is large and very smoothly animated. In fact he is by far the best part of the whole game; his powerful stance and confident strut are delightfully promising. His job is to walk up and down the corridors shooting swarms of traditional spinning, wobbling aliens. Once shot, the aliens drop coloured globes giving different features. Some build up pictures of the scientists' faces, others increase your energy or give access to different parts of the game.



A system of switches on the floor open and close force fields blocking your way. Although these are meant to give you more to do, they end up just as a pain in the neck. There is very little variety to the game that it could become a bore after only a couple of games. But the final level has a lot more to it. Here you jump in a space ship and meet up with Ocular, the six eyed monster. Shooting all his eyes out completes the game.

It must be said that Dream Warrior has been programmed very neatly. Apart from the main character, none of the graphics are outstanding but they are all very smooth and extremely easy on the eye. Some of the sound effects have been well done although it all does have very Wizball like effects (bar the music). The trouble arises with the design of the game which is far too unadventurous; underneath that confusing scenario all that can be found is a rather mundane game. Though I still like the idea of getting into somebody's dreams, very evocative, don't you think?

T.H.

Graphics: 69%
Sound: 80%
Playability: 54%
Overall: 57%
Rating: CRISP
Price: £9.99 (c)
£11.99 (d)

Four levels lie between you and Drax. Unlike the original which was a series of one-on-one battles against identical warriors, Barbarian II is played more as an arcade adventure. It all starts in the wastelands surrounding Drax's lair. Each screen makes up part of a mappable maze, in which you can find magical objects allowing progress to later stages.

Your first encounters will be with mutant chickens, blind dinosaurs and giant cavemen. Continually pounding a monster drains its strength, eventually reducing it to a puff of smoke. However, the flying neck chop comes in very handy for some of the more tasteless touches.

MEGA BARBA.

In the beginning, beat 'em ups were content to have you bruising and knocking out your opponents; blood was nowhere to be found. Then Barbarian came along and changed that with its gruesome decapitation sequence, complete with spurting blood and matching sound effects. Its sequel goes much further, resulting in the most disgusting game I have ever seen (in the nicest possible way)! If ever there was grutuitous violence, it's BII!

Villains like Drax just never disappear! You thought you had seen the last of him in the first adventure, but he has now retreated to his favourite torture chamber below his dungeons, vowing to wreak disaster upon the entire land. Not the type to miss out on an adventure, you decide to have another crack at beheading him. To your surprise, Princess Mariana (Marie Whittaker, get it?) – whom you rescued in the first episode – turned out to be a champion swordswoman and offers to take your place. The choice is yours, either play the bulging Barbarian or the equally bulging Mariana.

In your favour are four attacking moves: a low swipe, a kick, a skull cleaver and the good old flying neck chop. To compensate for the shortage of moves, more defensive steps can be taken. A huge variety of monsters roam around the land, some small, some enormous.

"Unlike the original which was a series of one-on-one battles against identical warriors, Barbarian II is played more as an arcade adventure."

Once into caves, laughing goblins, maggot-men and savage prehistoric lions lay into your flesh. In stage three, shackled prisoners wearily watch on as you battle with the obese Dungeon Master, leap over the tentacle of the Pit Thing and squidge the Giant Grub. Not until the final three-screened level do you get a shot at the Living Idol, the fire-breathing Demon and finally Drax.

Although the amount of moves have been cut down, the abundance of monsters and spots of detail make this just what a sequence should be; not just a tweaked version of the original but a whole new game with the best of the old. Some of the sound effects accompanying the action are superb. Take for example the crunching of the Pit Thing's jaws through your body, or the squelch of the wriggly Pink Maggot.

RIAN II

Palace

The graphics are of a similar high standard. Although a little jerky at times they are extremely effective. Being able to choose to play Barbarian or Mariana is another bright idea typical of the whole game. As well as all that, you can hack away assured that there is great ending awaiting anyone man (or woman) enough to mess with Drax. Let off some steam, hack a few hearts out and decapitate a couple of caveman, you'll feel much better for it!

T.H.

BARBARIAN · II
THE DUNGEON OF DRAX

Graphics: 91%
Sound: 91%
Playability: 89%
Overall: 90%
Rating: MEGA
Price: £9.99 (c)
£14.99 (d)

C64

IFFY

Elite

HOPPING MAD

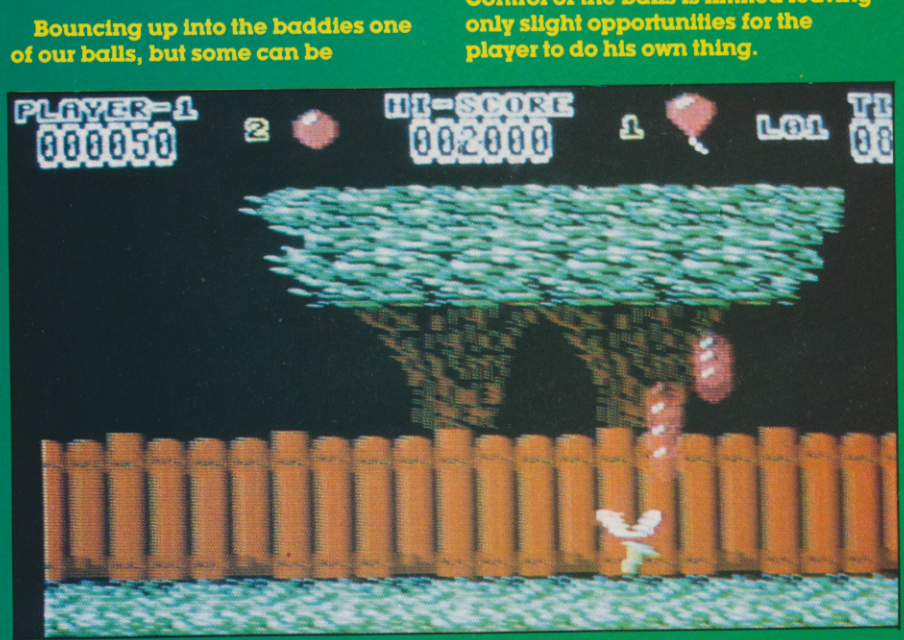
For a chance, here is a game that includes the usual illogical collection of creatures and scenery but does not bother to give some stupied storyline to justify them. Instead it just tells you very briefly how to play the game; admireble restraint from Elite's scenario writers.

Four bals are partially under your control during the game. Only partially because they continually bounce one after the other, you control their speed and bounce height. It starts in a park where bees buzz past, ball eating plants munch, birds fly and worms crawl (well, what else would they do?). Amongst all this activity balloons float by, ten of which need to be collected to move onto the next level.

'Bouncing up into the baddies one of our balls, but some can be squashed by bouncing on top of them'

Bouncing up into the baddies one of our balls, but some can be squashed by bouncing on top of them. Fruit in the trees can be picked up for bonus points. Progressing from the park takes you to the beach with suitable changes in the graphics. Big colourful palm trees and buckets and spades are a lot more interesting than the wooden fences of the first level. Next it is into the briny, dodging some very fishy and lethel characters.

A glance from an onlooker could lead him to think this was a Wizball clone but once you play it becomes obvious that there is very little to do. Control of the balls is limited leaving only slight opportunities for the player to do his own thing.



Hopping Mad's graphics are colourful, varied, smooth and would appeal to a younger audience than most games.

Hopping Mad's graphics are colourful, varied, smooth and would appeal to a younger audience than most games. A jolly (irritating) tune plays on the title screen with effects of the simplest kind during the game. There is also an ear-piercing bug that sometimes creates a constant whine until the end of the game.

As a two or three pound game, Hopping Mad would be more than acceptable but at a full £9.99 it is far less appealing. Even though everything moves quickly and smoothly it still had me bored after a very short session. If you like the simpler things in life, or you have an antipathy toward shooting things, Hopping Mad may please you. It would certainly appeal to the under 10 year old group who would like the bright graphics. For the rest of us Wizball would be a far better investment in a similar style but with long term appeal.

B.V.

Graphics: 79%
Sound: 28%
Playability: 53%
Overall: 55%
Rating: IFFY

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Hack Pack	All-in-one programmer's Toolkit/Ram-disk (state 64/128)		19.95
Oxford Basic 64	All-in-one Basic compiler, Toolkit, compressor		19.95
1750 Expansion RAM	512K Expansion RAM cartridge for the C128		149.95
RamDos 128	Lightning-fast RAM-disk for 512K expansion RAM		29.95
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Anatomy of the 128	The 500-page insider's guide to the 128		9.95

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Competitions

WINNERS

Winners of Albatross competition

P. Nice
E. Sussex

B. Duntan
Dyfed

S. Schollar
Surrey

C. Chiu
Newcastle

A. Maini
Middx

M. O'Flaherty
Ireland

Winners of Northstar competition

Winner
P Torton
Nottingham

Runners-up
J. Arnold
Merseyside

S. Sayers
Glos

A. Bowden
Herts

M. Morgan
South Wales

R. Preston
Warwicks

M. Schiller
Norfolk

R. Walker
West Midlands

J. Hicks
Skelmersdale

S. Reeves
West Midlands

M. Jones
Hinckley

J. Kosonen
Finland

J. Rogers
Liverpool

G. Bowden
Herts

R. Murdoch
Glasgow

A. Swinburn
Penarth

C. Bell
BFPO 40

P. White
Hants

A. Swinburne
S. Glamorgan

J. Tyrell
Liverpool

J. Davey
S. Devon

C. Garbutt
Essex

M. Smith
London

R. Newman
Bristol

A. Maini
Middlesex

Winners of Impossible Mission II competition

1st 2 winners
T. Griffin
Dublin

J. Lightfoot
Gwent

25 runners-up
S. Wright
Avon

C. Garbutt
Essex

E. Morgan
N. Ireland

K. Hawkins
Sheffield

P. Dibley
Bucks

Kyle McDonald
W. Australia

S. Fisher
S. Devon

P. Putnam
London

M. Luckhurst
Surrey

M. Jones
Leics

S. Flynn
Berkshire

S. Sayers
Gloucs

N. McDonald
Aberdeen

M. Le-Vallois
Scotland

M. Smith
London

M. Tipple
Tyne & Wear

J. Arnold
Merseyside

S. Emery
Merseyside

A. Maini
Middlesex

R. Murdoch
Glasgow

C. Chiu
Newcastle-u-Tyne

A. Tate
Tyne & Wear

G. Jukes
Birmingham

W. J. Dowdle
Co. Durham

Winners of Sunstar competition

Winner of C64
M. Jones
Leics.

25 runners-up of Sunstar games
S. Foster
Lancs.

J. Arnold
Merseyside

C. Quan
London

M. Davies
S. Wales

D. Race
Somerset

S. Lee
W. Sussex

M. Schiller
Norfolk

J. Kaponi
London

G. Mander
Worcs.

A. Maini
Middlesex

C. Martin
Staffs

C. Dolman
W. Midlands

J. Davey
S. Devon

J. Lightfoot
Gwent

N. Gaywood
Middlesex

G. Collins
Dorset

J. Tyrell
Liverpool

F. Oakley
W. Midlands

S. Sayers
Glos

K. Siddigui
London

K. Jones
Leics

Cpl Manning
BFPO 41

C. Garbutt
Essex

K. Bromfield
Devon

M. Fenn
Hereford

AMAZING ROAD BLASTERS CHALLENGE!

How would you like to power a real life racing car around a Grand Prix circuit? Well, CCI readers are, of course, privileged people and one of you is going to steer that racing car at speed for a mindblowing drive! In collaboration with US Gold, CCI has arranged a stupendous Roadblasters competition in which the first prize is a day for two at either Brands Hatch or Silverstone racing circuits with the winner – or if he or she can't or won't take up the challenge – the winner's companion will get a lesson from an expert racing driver in how to drive one of those stunning car racing monsters. And, if you are very lucky, you might get the gorgeous Danielle of US Gold to accompany you! (Racing drivers from all over the world fly in and beg her, for luck, to run their fingers over her chassis!)

You will be kitted out in the proper driving uniform but underneath there will be US Gold sweatshirts for your good luck!

The 25 runners-up will get copies of Roadblasters (it's reviewed in this CCI) to practise dangerous driving on and shoot everything in sight in what lots of violence-lovers think is the most exciting action around. The winner will be the first all correct entry out of the CCI Comp Sack.

All you have to do is answer the following questions:

1. Which company created Roadblasters for the arcades?

2. How much does the Roadblasters car cost?

3. How do you get extra weapons in Roadblasters?

4. How many stages are there in Roadblasters?

5. Who wrote the 64 version for US Gold?

6. Under which other label does US Gold publish games?

Answers on a postcard please, by October 15th 1988, to
CCI/Roadblasters Challenge
40 Bowling Green Lane
London EC1R 0NE

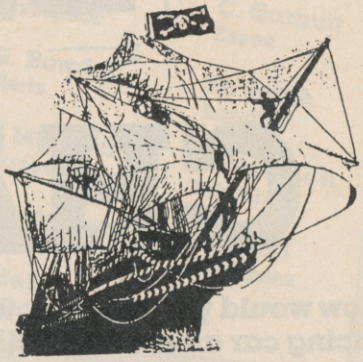
PIRATES AGAIN!

(WIN THAT WEEK IN BARBADOS!)

You must send your highest score in Pirates as a photograph or print-out. And write, in not more than twenty words, why you find Pirates fun.

The top five scores each month will get a Microprose sweatshirt and a free year's subscription to CCI. The top two scores of each month - ten in total - will be invited to the Personal Computer Show in September at Earl's Court to a Pirates play-off at which the winner will be the one with the highest score and who will, of course, win the glorious piratical Barbadian week and the treasure cash!

You can enter once each month and re-enter with improved ratings if you wish (don't forget the game can be saved to disk).



SEND YOUR ENTRIES TO

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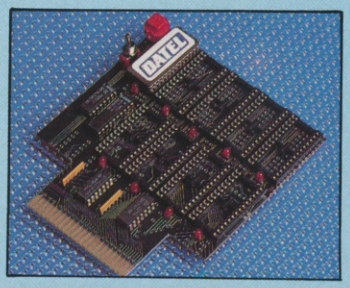
256K SUPEROM EXPANDER

- Now you can select from any of 8 32K EPROMs instantly.
- 8 sockets to accept upto 32K EPROM in each.
- On board operating system – no programs to load.
- Program your own EPROMs using our EPROM programmer.
- No need to have loads of cartridges – just make a selection from the Superom menu.
- Directory of utilities on power up.
- Fully menu driven on power up.
- Select any slot under software controls.
- Unique EPROM generator feature will take your own programs – basic or m/c and turn them into autostart EPROMs. (EPROM burner required).
- Accepts 2764/27128/27256 EPROMs.
- On board unstoppable reset.



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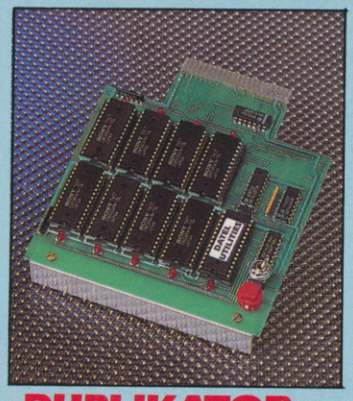


RESET CARTRIDGE

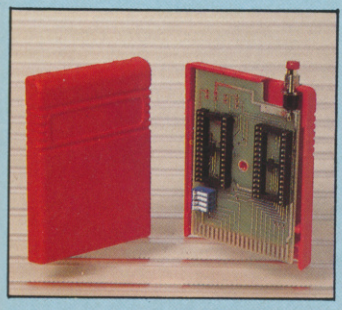
- Unstoppable reset button.
- Resets even so called "unstoppable" programs.
- Add pokes from magazines etc.
- Fits in cartridge port.
- Simply plug in.

ONLY £5.99

DUPLIKATOR™

- Copies whole disk in one pass – only one drive required!
- Makes back-up copies in eight seconds!!
- Duplikator is the fastest, most efficient and easiest to use disk copying system ever conceived.
- Comes complete with 256K on-board ram and it's own operating system – no software to load.
- Makes multiple copies from one original.
- Full disk verification during back-up process.
- Copies standard software as well as errors 21-29 and upto 40 tracks.
- Full disk error check in eight seconds.
- Full disk verify against ram in fifteen seconds.
- A must for clubs, user groups etc. How else can you copy over 250 disks and hour for less than £100.
- Comes complete with on/off switch and reset button.
- Fitted in minutes – no soldering usually required.

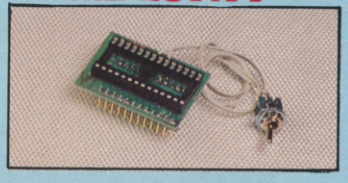
ONLY £89.99



16K EPROM BOARD

- Accepts 2 x 8K EPROMs.
- Switchable to configure as 2 x 8K or 16K or off.
- On board unstoppable reset.
- Full instructions.

ONLY £8.99



4 WAY KERNAL BOARD

- This board fits in place of the kernal in your 64 and accepts a 16K or 32K replacement kernal giving 2 or 4 different operating systems.
- Just flick the switch supplied to select between systems.
- This is a carrier only – ready to accept your own chip.
- Now you can have all your different systems available at one time.
- Full instructions.
- Fitted in minutes.
- 5-Way Board

ONLY £12.99

DISK NOTCHER

- Quickly and easily double your disk capacity.
- Use both sides of your disks.
- Simple to use.
- Takes seconds.

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DEEP SCAN BURST NIBBLER™

- The most powerful disk nibbler available anywhere, at any price!
- Burst Nibbler is actually a two part system – a software package **and** a parallel cable to connect the 1541/1570/1571 to 64/128 (state type).
- What gives Burst Nibbler its power? Conventional nibblers have to decode the data from the disk before it can transfer it using the serial bus – when non standard data is encountered they are beat. Burst Nibbler transfers data as raw GCR code via the parallel cable without the need to decode it so you get a perfect copy of the original.

- Will nibble upto 41 tracks.
- Copy a whole disk in under 2 minutes.
- Full instructions.
- Regular updates – we always ship the latest.
- Fitted in minutes – no soldering usually required.
- Full or ½ tracks.
- No need to buy parallel cable if you have Disk Demon/Dolphin etc.
- Cable has throughbus extension for other add ons.

- Whether to choose FastHack'em or Burst Nibbler? Fast Hack'Em is unbeatable value as an "all-rounder" – with nibblers, 1 or 2 drive copy, format, file copy, 1571 copy etc. etc., so if you have a more general requirement perhaps FastHack'Em is for you. Burst Nibbler is a pure nibbler second to none, for the reasons stated. So if it's just making backups you are interested in, there is no other product to beat it.

ONLY £24.99 COMPLETE
SOFTWARE ONLY £12.99 CABLE ONLY £14.99

BURST NIBBLER PARAMETERS DISK

- Burst Nibbler is the most powerful disk copier available – but there are still a few programs with very complicated protected, which makes it impossible to nibble copy. The Burst Nibbler Parameter Disk contains routines to copy individual programs.
- Used in conjunction with Burst Nibbler even the latest highly protected programs can be backed up.
- The disk contains over 100 parameters including many of the latest titles. Many of the titles can already be straight nibbled by burst nibbler – but can be used with the "Super Serial Nibbler" program (supplied) by users with drives that will not support parallel copier cables such as Excelerator, Oceanic etc.
- Simple to use – just nibble the disk then run the individual parameter for that program and the special routine will produce a perfect working copy – in some cases it will even de-protect it!
- Comes complete with "Super Serial Nibbler" program for users who can't fit a parallel copier such as Burst Nibbler to their drive (Excelerator, Oceanic etc)., not as fast as Burst Nibbler but when used in conjunction with parameters its formidable!
- Remember – this disk is by no means a must for Burst Nibbler owners since it already copes with over 90% of Software. But for those who want everything this is it. Also for none Burst Nibbler owners you get a "Super Serial Nibbler" which together with the parameters is a powerful utility.

COMPLETE PROGRAM DISK # 1 AVAILABLE NOW ONLY £12.99

TOOLKIT IV

The ultimate disk toolkit for the 1540/1541

- A disk toolkit is an absolute must for the serious disk hacker. Toolkit IV has more features than most for less.
- DISK DOCTOR V2 – Read and write any track and sector including extra and renumbered tracks. Repair damaged sectors. Look underneath read errors.
- HEADER/GAP EDITOR – Decodes and displays ALL header information including off bytes and header gap. Rewrite the entire header and header gap. Renumber sectors. Also edit any sector tail gap.
- DISK LOOK – Sort directory. Recover lost files. Display file start/end addresses. Disassemble any file program directly from the disk to SCREEN or PRINTER including undocumented opcodes. Edit Bam. Much, much more.
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- FAST FILE COPY – Selective file copy. Works at up to 6 times normal speed.
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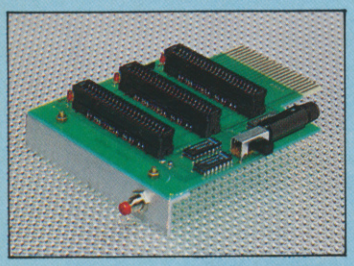
- ERROR EDIT – Quickly find and recreate all read errors including extra and renumbered tracks or sectors and half tracks from 0 to 41. Even recreates data under errors and allows you to redefine any necessary parameters.

ONLY £9.99

DATEL ELECTRONICS



3 SLOT MOTHERBOARD

Save wear and tear on your Expansion Port

- ❑ Accepts 3 cartridges.
- ❑ Onboard safety fuse.
- ❑ Switch in/out any slot.
- ❑ High grade PCB.
- ❑ Fully buffered.
- ❑ Reset button.

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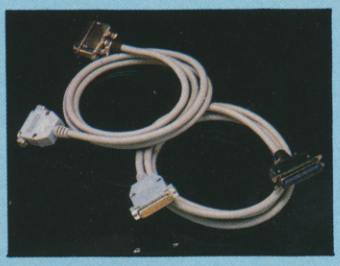

CENTRONICS PRINTER LEAD

- Connect your C64/128 to a full size Centronics Parallel Printer.
- Suitable for use with Action Replay IV or Final Cartridge III
- Also works with any Software/Graphics package that has parallel driver software built-in – this includes many popular wordprocessors, databases, etc.
- Top quality connections – ribbon cable 1.5m long.

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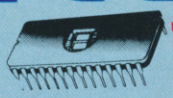

TURBO ROM II

Turbo Rom II is a replacement for the actual kernal inside your 64. It provides superfast load/save routines.

- ❑ Loads most programs at 5-6 times normal speed.
- ❑ Saves at 5-6 times normal.
- ❑ Improved DOS support including 10 sec format.
- ❑ Programmed function keys:- load, directory, old, etc.
- ❑ Return to normal kernal at flick of a switch.
- ❑ FCOPY – 250 block file copier.
- ❑ FLOAD – special I/O loader.
- ❑ Plus lots more.
- ❑ Fitted in minutes – no soldering usually required. (On some 64's the old ROM may have to be desoldered).

ONLY £14.99

DIGITAL SOUND SAMPLER

- ❑ The new sampler allows you to record any sound digitally into memory and then replay it with astounding effects.
- ❑ Playback forwards/backwards with echo/reverb/ring modulation etc.
- ❑ Now with full sound editing module to produce outstanding effects.
- ❑ Full 8 bit D to A and ADC conversion.
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- ❑ Live effects menu includes real time display of waveforms.
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- ❑ Powerful sequencer with editing features.
- ❑ Load/save sample.
- ❑ Up to 8 samples in memory at one time.
- ❑ Tape or disk (please state).
- ❑ Complete software/hardware package **£49.99**
- ❑ Com-Drum software is available separately at **£9.99** to turn your Sampler II into a Com-Drum system as well as a sampling system.

DATA RECORDER

- ❑ Quality Commodore compatible data recorder.
- ❑ Pause control.
- ❑ Suitable for 64/128.
- ❑ Counter.
- ❑ Send now for quick delivery.

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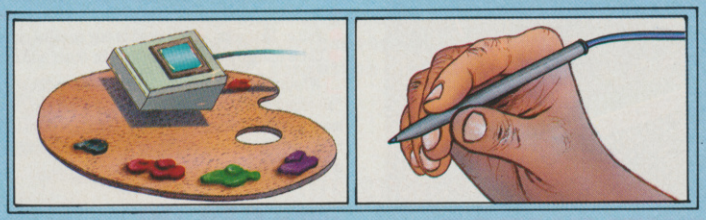


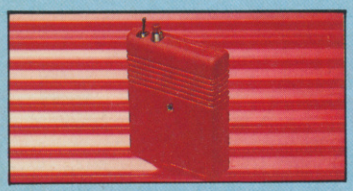
BLAZING PADDLES

A complete lightpen/graphics illustrator package.

- ❑ A fully icon/menu driven graphics package of a calibre which should cost much more.
- ❑ Complete with a fibre optical lightpen system for pin point accuracy.
- ❑ Multi feature software including:
  - Range of brushes • Airbrush • Rectangle • Circle • Rubberbanding • Lines • Freehand
  - Zoom mode • Printer dump • Load/save • Advanced colour mixing – over 200 hues!!
  - Cut and paste allows shapes/windows/pictures to be saved to/from tape/disk.
- ❑ Blazing Paddles will also work with many other input devices including; Joysticks, Mice, Graphics Tablets, Trackball etc.
- ❑ Pictures can be saved from Action Replay and edited with Blazing Paddles.

Complete Blazing Paddles & Lightpen **ONLY £24.99**

Blazing Paddles available separately for **£12.99**



SMART CART™

Now you can have an 8K or 32K cartridge that you program like RAM then acts like ROM!

- ❑ 8K or 32K pseudo ROM.
- ❑ Battery backed to last up to 5 years (lithium battery).
- ❑ Simply load the program you require – then flick the switch. The cartridge can then be removed just like a ROM cartridge.
- ❑ Make your own cartridges including autostart types – without an EPROM burner.
- ❑ Can be switched on or off board via software.
- ❑ I/O 2 slot open for special programming techniques.
- ❑ 32K version has 4 x 8K pages.
- ❑ Some knowledge of M/C is helpful – but full instruction are provided.

8K VERSION £14.99
32K VERSION £29.99

RAM DISK

- ❑ Turn your Smart Cart into a 32K RAM/disk.
- ❑ 32K of instant storage area for files/programs.
- ❑ Load/save instantly.
- ❑ Disk type commands: load, save, directory, scratch.
- ❑ Program data retained when computer is switched off!
- ❑ Full command set with instructions.

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GRAPHICS SUPPORT UTILITIES DISKS

• A range of utilities to make the most of your high res pictures created with popular graphics utilities or captured with Action Replays unique picture grabber.

• SLIDE SHOW

- View your favourite screens in a slide show type display.
- Move from screen to screen – keyboard or joystick control. • Very easy to use.

• BLOW UP™

- A unique utility to allow you to take any part of your picture and 'blow it up' to full screen size.
- Even fills the border with powerful sprite handling techniques. • Very easy to use – simple commands
- An interesting utility.

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- A complete sprite editor helps you create or edit sprites.
- Full colour display • Animate to view movements.
- Action Replay can capture/insert sprites with any program – this editor is a perfect companion.

• MESSAGE MAKER

- Takes your favourite screen – created with a graphics package or captured with action replay and turns it into a scrolling screen message complete with music.
- Send screens to your friends with music and text scrolling. • Simple text editor – easy to use.
- Choice of music. • An exciting utility.
- Finished screens stand alone.

Complete disk with all four utilities

ONLY £12.99

COM-DRUM

Digital Drum System

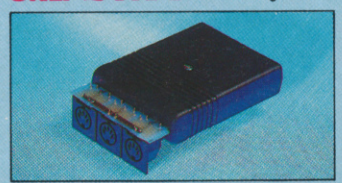
- ❑ Now you can turn your computer into a digital drum system. ❑ Hardware/software package.
- ❑ 8 digital drum sounds in memory at one time.
- ❑ Complete with 3 drum kits.
- ❑ Real drum sounds – not synthesised.
- ❑ Create superb drum rhythms with real and step time. ❑ Full editing. ❑ Menu driven.
- ❑ Output to hi-fi or through tv speaker.
- ❑ Load/save facilities.

ONLY £29.99 (state tape or disk)

COM-DRUM EDITOR

- ❑ 24 drum sounds supplied on disk to enable you to construct your own drum kit.
- ❑ Re-arrange sounds supplied with a Com-Drum to make new kits.
- ❑ With sound sampler hardware you can record your own kits. ❑ Load/save facilities.

ONLY £4.99 disk only



MIDI 64

A Full Midi Interface for the 64/128 at a realistic price

- ❑ MIDI in. ❑ MIDI thru. ❑ 2 x MIDI out.
- ❑ Compatible with most leading software packages including: Seil, JMS, Advanced Music System, Joreth, Steinburg etc.

ONLY £29.99

ROBOTEK 64

Model & Robot Control made easy

- ❑ Robotek 64 is a comprehensive hardware/software package which enables you to connect your 64/128 to the outside world.
- ❑ 4 output channels – each with onboard relay
- ❑ 4 input channels – each fully buffered TTL level sensing.
- ❑ Analogue input with full 8 bit conversion.
- ❑ Voice input for voice control.
- ❑ Software features:- test mode/analogue measurement/voice activate/digital readout etc.
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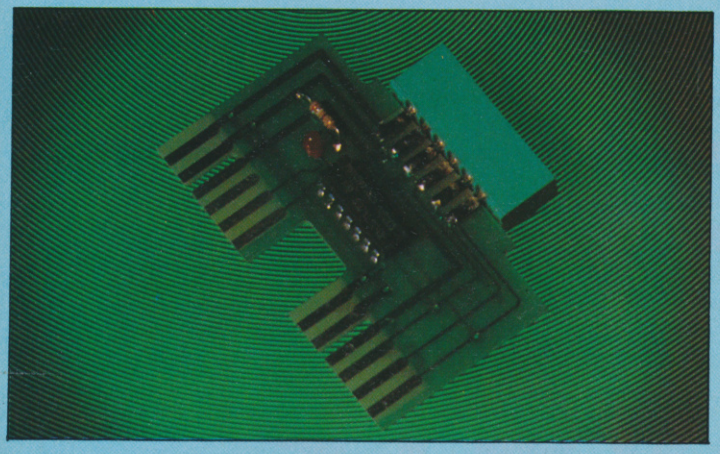

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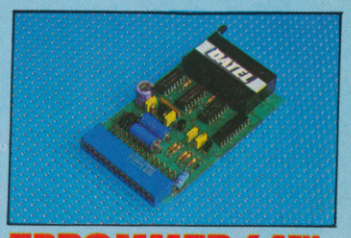

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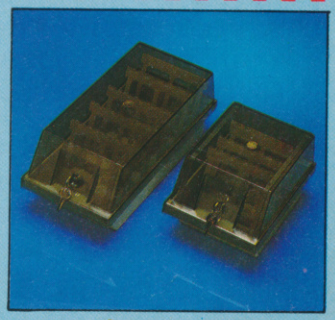

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THE SEGA MASTER SYSTEM

WIN ONE FOR YOURSELF!

This month we have taken a look at The Sega Master System Games Console. Though it doesn't have the extra possibilities of a full computer, there is no doubt that it has a lot going for it as a games machine pure and simple. Tony Horgan who did the main research into the Sega had to be torn away from it – especially Alex Kidd in Miracle World and Space Harrier 3D! Otherwise we'd have been short of C64 games reviews this month!

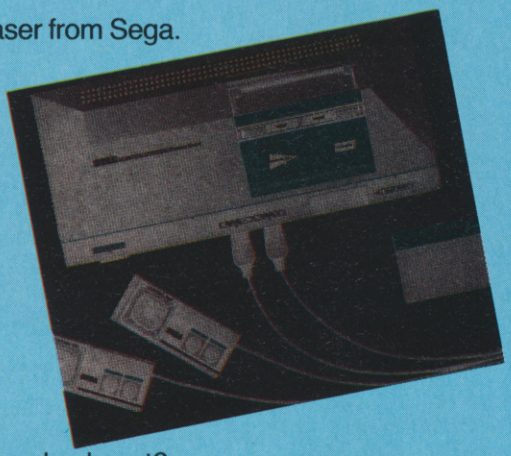
Mastertronic, who distribute The Sega Master System in the U.K. have given us one to award to the winner of a simple competition exclusively for CCI readers.

All you have to do is answer the following questions:

1. Who markets the Sega Master System in the U.K.? (A really hard one that!)

2. Name a game which uses the 3D glasses together with the light phaser from Sega.

3. Which multi-sequelled film has a Sega game designed around it?



4. Unscramble these four anagrammed Sega coin-ops:

RUBER FREANT

UNROUT

YO MIEN SLANDER

REACE PARISH

5. In which Sega game would you find windsurfers, a cloudy mountain and a desert?

6. How much does the basic Sega Master System cost?

The winner – drawn out of the CCI Comp sack by Teresa the Comp Princess – will get a complete Sega Master System plus four games, 3D glasses and a light phaser! The ten runners up will get some of the latest Mastertronic games as a consolation prize.

Answers, on a postcard please, must reach us by October 15th 1988. Please include your choice of C64 or C16 for Mastertronic games, just in case you don't win!

Send to The Great CCI/SEGA Competiton,
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If you are seriously interested in using or programming any Commodore computer, then joining ICPUG is a must!

For full details, send a stamped addressed envelope to:

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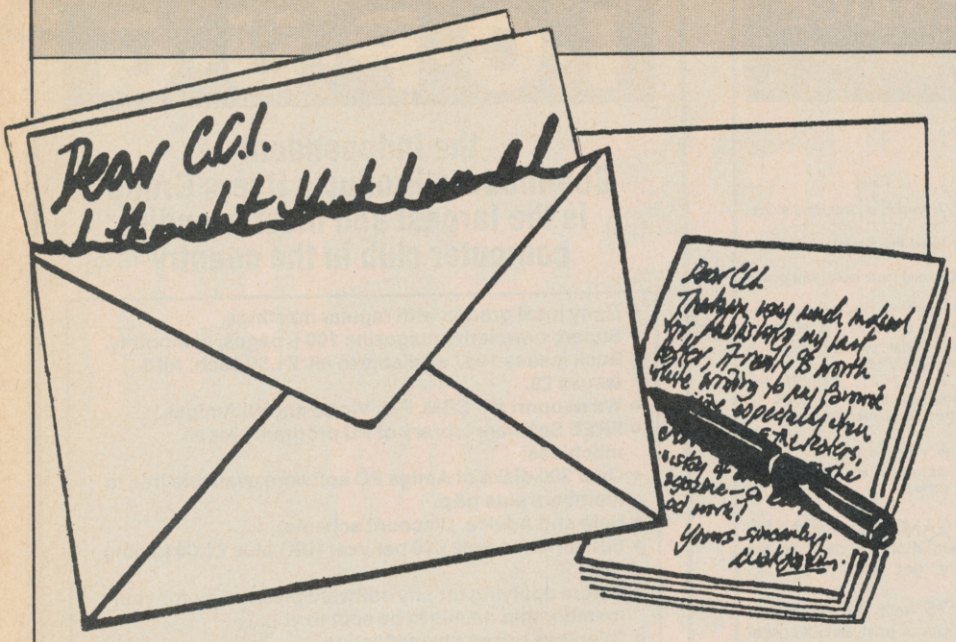


Dear CCI,
I am writing to you in praise of DB Electronic Services in Chelmsford. After reading Tech Ed letters in June's CCI, I thought I would give them a try as regards a small spare for my MPS 801 printer. I had phoned many repair and spare centres only to get negative response, but the gentleman at DB was extremely helpful, my spare arrived next morning in the post.

This is excellent service to say the least. I would certainly recommend your readers to this company.

Excellent mag by the way.

Yours,
C. E. Best, Winchester

Dear C. E. Best,
It is always nice to hear compliments about advertisers. When there are problems we try to help solve them. When there are compliments, we like to pass them on – publicly.

Dear CCI,
I am writing to your magazine for a number of reasons. Firstly to thank you and your team for producing a mag that is certainly interesting to read and provides real value for money. Over here in Oz it costs around $3.50 as opposed to nearly $10 for AmigaWorld – and for myself and friends provides a lot more interest.

Secondly, on the point of piracy. In Australia, most of the software is so highly priced that very few people will buy it; the dealers even agree with this. Pirated software tends to get to this country a matter of a couple of weeks after release oveseas, whereas the legal copies don't arrive for a couple of months if you're lucky!

Admittedly, I have received a number of copied disks, few of which I would have paid money for anyway. However, as the good original software arrives I am buying copies for the instructions etc. Games like Bard's Tale, Phantasie etc are certainly worth the money and I'll continue to buy them. Very few of the arcade games I've seen offer any more than a couple of hours of entertainment and with the game costing a minimum of $40 this is expensive entertainment indeed. With Bard's Tale at $65, though, I'm getting better value for money as I will get over 100 hours playing time from it. (Used to have a copy on my old Apple II system.)

Anyway to sum up, I'll continue to buy original fantasy role-playing games at any price if they're good, but will not pay out high prices for arcade games.

The solution to piracy in Oz, which is pretty bad, is to have simultaneous release world-wide and reduce the prices to a realistic level, e.g. under $30 for arcade games. Then the consumer may start to buy some originals.

Okay, enough of that. On to the primary reason I am writing to you. I have contact with a few Amiga uses but none of them are interested in programming this machine. Even the user groups are only interested in playing games and the like. So if anyone in England or wherever is into Assembly Language on the Amiga, I would certainly like to write to them with exchange of ideas, programming tips etc. I previously spent around six years programming my Apple with machine code, and have just recently started on the Amiga. I have a few demos finished with graphics, animation etc and will shortly be adding digitised sound. I would be happy to share the knowledge I have picked up with others if they are interested and maybe we an team up to write some games software etc.

Okay, this is getting to be a long letter. Thanks again for a great magazine. Write soon!

Mark Kerr, PO Box 546, Morpetvale, 5162 S.A., Australia

Dear Raul,
You confirm Mark Kerr's letter from Australia and your comment on piracy is very similar too. It always happens when prices are high. As for your advice to software companies to build up their protection, we're sure they'd like to but even then hackers would probably manage to break them. The real solution is high class software at low prices through big, big sales. Then everybody gets a good deal. And we'll try to get some Amiga 'Grafix' on the cover in future issues just to please you!

Dear CCI,
In the June issue of the CCI Magazine I read about a UK gamer who had won the Congressional Medal of Honour in Gunship.

I have 8 Ultimate Apache pilots on my AH-64A Pilot Roster. They are all Colonels and hold the Congressional Medal of Honour along with one or more lesser decorations for heroism and gallantry.

Please use The Final Cartridge 1 to load the Pilot Roster (USE FLOAD). Type FLOAD 'HIGH SCORE' to show the High Score table.

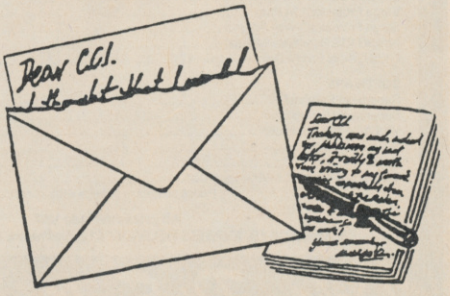
My brother has finished F-19 Stealth Fighter with 99 missions. Use 'Recall Pilot' on the Preflight Briefing to recall Brigadier General Oyvind K. Mehus.

Please return disk to the above address.

Yours sincerely,
Col. Dagfinn B. Mehus,
B. Gen. Oyvind K. Mehus, Norway

Dear Colonel and Brig. General Mehus,
It is indeed a great honour for us at humble CCI to hear from such high flyers as yourselves. Your disk bears out your great claims. You shall be entered by Teresa the Comp Princess in the Microprose competition and who knows you may even win the journey to Barbados.

(By the way, the CMOH winner mentioned in the news pages of CCI so impressed, he has reciewed Carriers at War in this issue.) Any more heroes out there? There's still time to qualify!



Feature

GOING INTERNATIONAL WITH THE COMPUNET MODEM

Jonathan Littlewood sees the Mercury rise and goes translatable . . .

A modem greatly expands the range of possibilities offered by a home computer. By itself a C64, 128 or Amiga is like an island cut off from other users except by the exchange of floppy disks. The addition of a modem opens up the world of electronic mail, online magazines, the downloading of public domain software, the purchase of software online (on systems such as Compunet) and most importantly the ability to contact other users with similar interests from all over the world.

Most modem users regularly call a number of commercial online services as well as their favourite bulletin boards. There are numerous such services in the UK alone suitable for the computer hobbyist, such as Compunet, Prestel and CIX as well as hundreds of BBSs. Inevitably, though, after a while one begins to look beyond national boundaries.

"For a fifteen pound connection fee I obtained cheap and fast access to BIX, Mnematics and a number of other State-side online services"

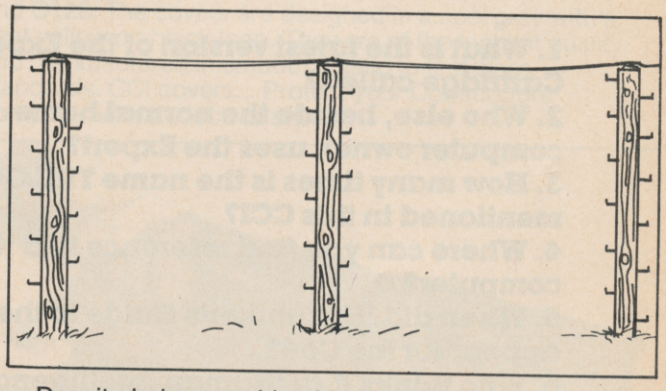
There are many very good bulletin board and online database systems in Europe and these are well worth investigating. However, because of their sheer size, some of the American online services are of particular interest. Services such as CompuServe, The Source, and BIX provide massive databases of information on virtually every subject, as well as up-to-date news, electronic mail and numerous other services.

Armed only with a C64, Compunet Modem and some terminal emulation software downloaded from Compunet, at a very reasonable price, one is immediately faced with two problems. The first is the high cost of transatlantic phone calls, the second that American modems refuse to talk to the Compunet modem anyway! The latter problem is due to the 'baud rate' used by the modem. Generally when using Compunet one sends simple commands, consisting of a few characters, but receives complete screens of information. To make this operation as efficient as possible, and to use the full potential of the telephone line's 'bandwidth', the modem receives data at approximately one hundred and twenty bytes per second but only transmits at seven and a half bytes per second. This standard, called V23, is used by most systems in the UK but is unknown in the States.

Luckily both problems have the same solution, the worldwide Packet Switch System (PSS). This service saves the user money since its cost is based on amount of data transmitted not simply on the time the service is used, as with normal telephone calls. Secondly, it provides any necessary translation between modem signal standards.

In the UK access to the network is provided both by British Telecom, with their IPSS, and Mercury with their M5100 service. Most national carriers in other countries provide a similar service. For the purposes of this article I signed up with Mercury, which is slightly cheaper than British Telecom but is less well established. For a fifteen pound connection fee I obtained cheap and fast access to BIX, Mnematics and a number of other State-side online services.

To call BIX, for example, the modem is used to dial one of about forty-five Mercury access numbers around the country that handle V23 communications. For most users this will be a local call. After the modems have connected and a few carriage returns have been typed, the Mercury computer displays a prompt. The user then types a username, password and a mnemonic for the system to be accessed and after a few seconds BIX's prompt appears.



Despite being considerably cheaper than an ordinary phone call to the States, such access is still not cheap. The most inexpensive method of use is to log on, save the data of interest to disk as quickly as possible, log off and then read the downloaded data at one's leisure. Mercury send an itemised bill monthly. This shows that in a typical twenty minute call to the States I downloaded about 150 Kbytes of data, quite a few evening's worth of reading, at a cost of about eight pounds fifty.

J.M.L.

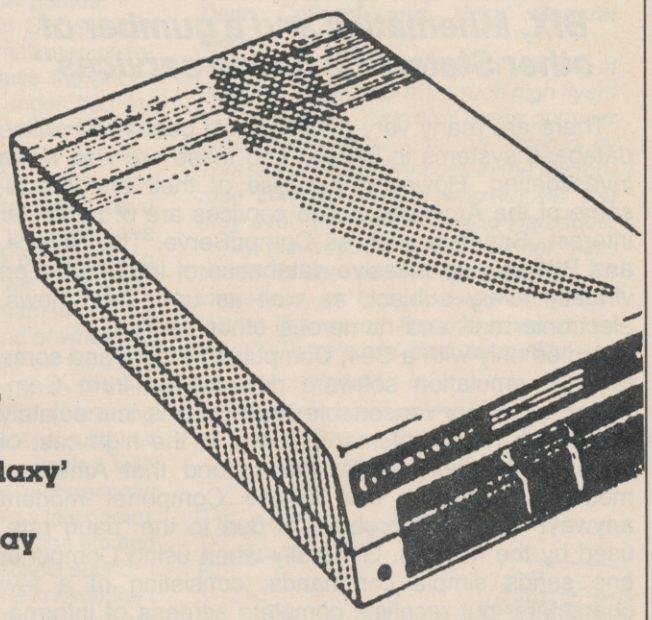
TRILOGIC COMPETITION

Everybody has trouble sooner or later loading programs or games, whether you use a disk drive or a datasette. That is why Trilogic's Datasette Doctor (Reviewed in CCI April 1988) and the Disk Doctor are so useful. They can deal with things like head alignments – or misalignments – and lots more of the simple problems that can be so infuriating if they are not taken care of. Nothing is more annoying than trying to work a slightly defective, highly frustrating piece of electronics.

Trilogic, who are very well-known for their Expert Cartridge, tell us that they are certain that the Datasette and Disk Doctors will prove as popular and as useful as The Expert.

Trilogic have given CCI ten of each Doctor to give to the winners of this competition. All you have to do is answer these questions, all the questions can be found in this magazine.

1. What is the latest version of the Expert Cartridge called?
2. Who else, beside the normal home computer owner, uses the Expert?
3. How many times is the name TRILOGIC mentioned in this CCI?
4. Where can you find reference to a 'C18' computer?
5. When did 'Hitchhiker's Guide to the Galaxy' appear for the C64?
6. Who thinks that 'Human intelligence may be an illusion'?



The twenty winners will be drawn out of the CCI Competition Sack – with the correct answers on a postcard please. Also mark whether you want a Trilogic Datasette Doctor or a Trilogic Disk Doctor (there you are, already two 'Trilogics' to start you off on question NO 3!).

Postcards should be sent to CCI/Trilogic (three!) Doctor Competition, 40 Bowling Green Lane London EC1R 0NE. Entries must reach us by October 15th, 1988

continued from page 24

COMPUTER VIRUSES

Recent examples of attacks by viruses

Incidents have been recorded from all corners of the globe, examles of some of the better known recent attacks are:

1. In December 1987 a computer virus brought down IBM's European Office automation network.

It flashed up a picture of a Christmas tree, but also included a program which searched through the company's electronic mail network for users' personal files and mailing lists. The program sent a copy of itself to everyone on those lists continuing the process of propagating itself. The program then vanished, presumably deleting itself.

When each of the names on the mailing list unwittingly ran the program the increased traffic on the network caused by the virus spreading had such an effect on system performance that it brought the system down and IBM engineers had to be called in to resolve the problem.

2. The Hebrew University in Jerusalem was the victim of a time-bomb virus. The virus threatened to go off on Friday, May 13, and destroy all data files including valuable research material.
3. In January, Amiga Computers produced by Commodore became a target when a computer virus inserted into Amiga software through the distribution network destroyed all data resident on users' disks.
4. The most recent incident to hit the headlines concerns the virus called Brain.

Brain is particularly insidious because it spreads without detection and resides in the boot sector of PC disk drives. The largest group of users affected are at a university in the Midlands where estimates suggest around 10-15,000 users have been attacked.

5. In the USA, Aldus Corp has reported that hundreds of copies of one of its software products has been infected by computer virus.

This is the first reported incidence of a virus appearing in commercially available software.

Price Waterhouse are currently examining every computer virus which has come to light and every "vaccine" program which has been devised in order to build up a body of knowledge on this relatively unresearched subject.

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TITLE SCREEN

Peter Croton

C64

Quality graphic screens are both time consuming and tricky to produce, but the presentation of a program, especially the graphic representation, is all important. Pete Croton has produced a very easy way to produce some stunning graphic effects, using no more than the numbers 0 to 9 and whatever text you want.
Enter the program as shown in the listing. NOTE switch to the Alt. Char. Set by typing CBM and SHIFT, this will make life easy.

AS ALWAYS SAVE A COPY BEFORE YOU RUN AND VERIFY THE COPY!!

The program takes a while to set up, so DON'T PANIC and the first screen will look slightly odd at first, until the custom graphics system is up and running that is. The program is menu driven so it should present no problems to use. Pete has included the data for his title screen so you can select the last screen option from the edited menu and see how he uses the system. But the system works by cycling a series of blob-like characters of which you are able to determine the starting point. If you enter 0123456789 you will see a blob moving from left to right. That's all the help that we will give, as the best way to learn how to drive the program is to use it. (That should take you all of 10 mins! It is VERY easy.)
One last thing to know is how to use the compile option. This will generate a stand alone version of the graphics that you can load and run without the main program. The screen will be saved as a 15 block long file.
To load and run the file, start by resetting your 64 and then enter . . .
POKE 44,32:POKE 43,1:POKE 8192,0:NEW
then load the file and run it by typing SYS 5448

THIS PROGRAM HAS BEEN FORMATTED FOR EASY ENTER

```
1000 rem program by pete croton
1010 rem to run poke 44,32:poke 43,1:poke 8192,0:new
1020 rem then load and run this program
1030 rem
1040 print"[CLR]welcome to the pulsating graphics drawer"
1050 poke53280,0:poke53281,0
1060 print"[CD]this program is designed to produce"
1070 print"screens of weird graphics."
1080 print"it includes a screen designer,colour[SP4]definer and save/load routin
es"
1090 print"[CD]when your wierd graphics screen has beendesigned,you will probabl
y"
1100 print"want to make use of the compile option[SP2]at the end-this just saves
";
1110 print" off a workingcopy of the program."
1120 print"[CD2][SP5]ABCDEFGHIJKLMNOPQRSTUVWXYZ"
1130 print"[SP5]A[SP6]please wait ..... Z"
1140 print"[SP5]ABCDEFGHIJKLMNOPQRSTUVWXYZ"
```

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```
1150 fori=2048to2816step8
1160 ch=0:forj=itoi+7:readd:ch=ch+d
1170 if d>255 thenprint"error in line ";peek(64)*256+peek(63):end
1180 pokej,d:nextj:readd:ifch<>dthenprint"error in line ";peek(64)*256+peek(63):
end
1190 nexti
1200 fori=49152to49390step8
1210 ch=0:forj=itoi+7:readd:ch=ch+d
1220 if d>255 thenprint"error in line ";peek(64)*256+peek(63):end
1230 pokej,d:nextj:readd:ifch<>dthenprint"error in line ";peek(64)*256+peek(63):
end
1240 nexti
1250 fori=50000to51000step8
1260 ch=0:forj=itoi+7:readd:ch=ch+d
1270 if d>255 thenprint"error in line ";peek(64)*256+peek(63):end
1280 pokej,d:nextj:readd:ifch<>dthenprint"error in line";peek(64)*256+peek(63):e
nd
1290 nexti
1300 print"[CU2][CR6]press any key to go on"
1310 sys49152
1320 poke53281,1:poke53280,1
1330 poke198,0:wait198,1
1340 poke53280,0:poke53281,0
1350 print"[CLR]":goto3890
1360 data 000,000,000,073,000,135,064,000,0272
1370 data 000,060,066,153,129,153,153,102,0816
1380 data 000,124,130,153,130,153,130,124,0944
1390 data 000,060,066,153,159,153,066,060,0717
1400 data 000,124,130,145,153,145,130,124,0951
1410 data 000,126,129,158,130,158,129,126,0956
1420 data 000,126,129,158,130,156,144,096,0939
1430 data 000,060,066,158,145,153,066,060,0708
1440 data 000,102,153,153,129,153,153,102,0945
1450 data 000,126,129,102,036,102,129,126,0750
1460 data 000,126,129,102,100,164,132,120,0873
1470 data 000,102,153,146,132,146,153,102,0934
1480 data 000,096,144,144,144,158,129,126,0941
1490 data 000,102,153,129,165,165,189,231,1134
1500 data 000,102,153,137,129,145,153,102,0921
1510 data 000,060,066,153,153,153,066,060,0711
1520 data 000,126,129,153,129,158,144,096,0935
1530 data 000,060,066,153,153,145,065,063,0705
1540 data 000,124,130,153,129,130,153,110,0929
1550 data 000,062,065,158,066,121,130,124,0726
1560 data 000,126,129,102,036,036,036,024,0489
1570 data 000,102,153,153,153,153,066,060,0840
1580 data 000,102,153,153,153,066,036,024,0687
1590 data 000,231,189,165,165,129,153,102,1134
1600 data 000,102,153,066,102,066,153,102,0744
1610 data 000,102,153,153,065,121,130,124,0848
1620 data 000,126,129,114,036,078,129,126,0738
1630 data 000,056,068,072,072,072,068,056,0464
1640 data 000,062,065,157,134,094,129,126,0767
1650 data 000,028,034,018,018,018,034,028,0178
1660 data 024,036,066,129,102,036,036,024,0453
1670 data 016,040,079,129,129,079,040,016,0528
1680 data 000,000,000,000,000,000,000,000,0000
1690 data 000,024,036,036,036,024,036,024,0216
1700 data 054,073,073,090,110,000,000,000,0400
1710 data 051,204,000,153,000,051,050,204,0713
1720 data 016,044,066,140,066,041,066,044,0483
1730 data 098,149,153,114,070,153,169,070,0976
1740 data 000,000,000,000,000,000,000,000,0000
1750 data 012,018,018,020,024,000,000,000,0092
1760 data 000,014,018,036,036,036,018,014,0172
1770 data 000,112,072,036,036,036,072,112,0476
```

continued from page 109

```
1780 data 153,090,060,255,255,060,090,153,1116
1790 data 000,016,040,108,130,108,040,016,0458
1800 data 000,000,000,060,036,036,040,048,0220
1810 data 000,000,126,129,129,126,000,000,0510
1820 data 000,000,000,000,024,036,036,024,0120
1830 data 000,006,009,018,036,072,144,096,0381
1840 data 000,060,066,153,153,153,066,060,0711
1850 data 000,024,036,068,036,036,066,060,0326
1860 data 000,062,066,153,114,070,129,126,0720
1870 data 000,126,129,121,097,185,129,126,0913
1880 data 000,012,018,038,077,129,125,002,0401
1890 data 000,126,129,158,129,121,129,126,0918
1900 data 000,062,065,158,129,157,129,126,0826
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1920 data 000,060,066,153,129,153,066,060,0687
1930 data 000,126,129,185,129,121,130,124,0944
1940 data 024,036,036,024,024,036,036,024,0240
1950 data 024,036,036,024,036,068,068,056,0348
1960 data 000,006,025,098,140,098,025,006,0398
1970 data 000,000,062,193,062,062,193,062,0634
1980 data 000,096,152,070,049,070,152,096,0685
1990 data 060,066,157,185,082,020,028,020,0618
2000 data 000,000,000,000,000,000,000,000,0000
2010 data 000,000,000,016,008,000,000,000,0024
2020 data 000,000,000,024,024,000,000,000,0048
2030 data 000,000,000,056,056,000,000,000,0112
2040 data 000,000,000,060,060,000,000,000,0120
2050 data 000,000,024,060,060,024,000,000,0168
2060 data 000,000,056,060,060,028,000,000,0204
2070 data 000,000,060,060,060,060,000,000,0240
2080 data 000,016,060,060,060,060,008,000,0264
2090 data 000,024,060,060,060,060,024,000,0288
2100 data 000,024,060,124,062,060,024,000,0354
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2190 data 024,062,255,255,255,255,126,024,1256
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2300 data 008,020,034,104,146,074,176,000,0562
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2320 data 139,227,131,164,124,165,026,167,1143
2330 data 120,169,000,141,032,208,141,033,0844
2340 data 208,169,026,141,020,003,169,192,0928
2350 data 141,021,003,169,019,141,024,208,0726
2360 data 088,096,169,000,162,000,160,000,0675
2370 data 189,000,004,032,149,192,201,255,1022
2380 data 240,009,157,000,004,032,234,192,0868
2390 data 157,000,216,232,224,000,208,232,1269
2400 data 169,000,162,000,160,000,189,000,0680
2410 data 005,032,149,192,201,255,240,009,1083
2420 data 157,000,005,032,234,192,157,000,0777
2430 data 217,232,224,000,208,232,169,000,1282
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2440 data 162,000,160,000,189,000,006,032,0549
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2500 data 234,192,157,000,219,232,224,232,1490
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2520 data 014,201,096,016,010,168,200,192,0897
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2550 data 000,004,189,074,196,157,250,004,0874
2560 data 189,068,197,157,244,005,189,062,1111
2570 data 198,157,238,006,232,224,251,208,1514
2580 data 227,096,162,000,189,000,004,157,0835
2590 data 080,195,189,250,004,157,074,196,1145
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2670 data 067,066,065,066,067,068,069,032,0500
2680 data 088,087,086,085,084,083,082,081,0676
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2870 data 075,073,071,069,067,066,065,032,0518
2880 data 084,083,082,081,080,079,081,083,0653
2890 data 085,087,089,089,087,085,083,081,0686
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2950 data 032,032,020,032,032,065,068,068,0349
2960 data 065,032,032,016,032,032,081,079,0369
2970 data 077,075,073,071,069,067,066,032,0530
2980 data 082,081,080,079,081,083,081,079,0646
2990 data 081,083,085,085,083,081,079,032,0609
3000 data 032,020,032,032,065,068,071,071,0391
3010 data 068,065,032,032,005,032,032,081,0347
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3030 data 081,080,079,081,083,085,083,081,0653
3040 data 079,081,083,083,081,079,032,032,0550
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3060 data 071,068,065,032,020,032,032,081,0401
3070 data 079,077,075,073,071,069,067,032,0543
3080 data 080,079,081,083,085,087,085,083,0663
3090 data 081,079,081,081,079,032,032,018,0483
```

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3100 data 032,032,065,068,071,075,078,075,0496
3110 data 071,068,065,032,005,032,032,081,0386
3120 data 079,077,075,073,071,069,067,032,0543
3130 data 079,081,083,085,087,089,087,085,0676
3140 data 083,081,079,079,032,032,023,032,0441
3150 data 032,065,068,071,075,078,078,075,0542
3160 data 071,068,065,032,032,032,032,081,0413
3170 data 079,077,075,073,071,069,067,032,0543
3180 data 079,081,083,085,087,089,087,085,0676
3190 data 083,081,079,079,032,032,032,032,0450
3200 data 032,065,068,071,075,078,078,075,0542
3210 data 071,068,065,032,040,032,032,081,0421
3220 data 079,077,075,073,071,069,067,032,0543
3230 data 080,079,081,083,085,087,085,083,0663
3240 data 081,079,081,081,079,032,032,032,0497
3250 data 032,032,065,068,071,075,078,075,0496
3260 data 071,068,065,032,001,032,032,081,0382
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3410 data 065,032,032,032,032,032,032,081,0338
3420 data 079,077,075,073,071,069,067,032,0543
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3440 data 085,087,089,089,087,085,083,081,0686
3450 data 079,032,032,056,032,032,065,065,0393
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3510 data 032,053,032,032,032,032,081,079,0373
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3540 data 081,083,085,087,087,087,087,085,0682
3550 data 083,081,079,032,032,032,032,032,0403
3560 data 040,032,032,032,032,081,079,077,0405
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3580 data 087,086,085,084,083,082,081,080,0668
3590 data 079,081,083,085,085,085,085,085,0668
3600 data 085,083,081,079,032,032,032,032,0456
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3630 data 088,087,086,085,084,083,082,081,0676
3640 data 080,079,081,083,085,085,085,085,0663
3650 data 085,085,083,081,079,032,032,032,0509
3660 data 032,032,032,081,079,077,075,073,0481
3670 data 071,069,067,066,065,066,067,032,0503
3680 data 089,088,087,086,085,084,083,082,0684
3690 data 081,080,079,081,083,083,083,083,0653
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3710 data 032,081,081,079,077,075,073,071,0569
3720 data 069,067,066,065,066,067,068,032,0500
3730 data 090,089,088,087,086,085,084,083,0692
3740 data 082,081,080,079,081,081,081,081,0646
3750 data 081,081,081,081,081,081,081,081,0648
```

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3770 data 067,066,065,066,067,068,069,032,0500
3780 data 032,032,032,032,032,032,032,032,0256
3790 data 032,032,032,032,032,032,032,032,0256
3800 data 032,032,032,032,032,032,032,032,0256
3810 data 032,032,032,032,032,032,032,032,0256
3820 data 032,032,032,032,032,032,032,032,0256
3830 data 032,032,032,032,032,032,032,032,0256
3840 data 032,032,032,032,032,032,032,032,0256
3850 data 032,032,032,032,032,032,032,032,0256
3860 data 032,032,032,032,032,032,032,032,0256
3870 data 032,032,032,032,032,032,032,032,0256
3880 data 188,188,188,188,188,188,188,188,1504
3890 rem main
3900 fori=49390+65to49390+96
3910 readcol:pokei,col:next
3920 sys49322:ford=1to2000:next
3930 data5,5,5,5,5,5,5,5,5,5
3940 data13,13,13,13,13,13,13,13,3,3
3950 data3,3,3,3,13,13,13,13,5,5,5,5
3960 print"[CLR]":sys49152
3970 fori=1to40:poke1024+(rnd(1)*1000),65:next
3980 print"[HOM][WHT][CR10]main menu."
3990 print"[CR10]---------"
4000 print
4010 print
4020 print"[CR][CYN]1) edit screen"
4030 print"[CR][LGRN]2) save screen"
4040 print"[CR][GRN]3) load screen"
4050 print"[CR][LGRN]4) show screen"
4060 print"[CR][CYN]5) compile screen"
4070 print"[CR][LBLU]6) set colours"
4080 print"[CR][BLU][CD2]your choice (1-6)"
4090 poke198,0:wait198,1
3920 sys49322:ford=1to2000:next
3930 data5,5,5,5,5,5,5,5,5,5
3940 data13,13,13,13,13,13,13,13,3,3
3950 data3,3,3,3,13,13,13,13,5,5,5,5
3960 print"[CLR]":sys49152
3970 fori=1to40:poke1024+(rnd(1)*1000),65:next
3980 print"[HOM][WHT][CR10]main menu."
3990 print"[CR10]---------"
4000 print
4010 print
4020 print"[CR][CYN]1) edit screen"
4030 print"[CR][LGRN]2) save screen"
4040 print"[CR][GRN]3) load screen"
4050 print"[CR][LGRN]4) show screen"
4060 print"[CR][CYN]5) compile screen"
4070 print"[CR][LBLU]6) set colours"
4080 print"[CR][BLU][CD2]your choice (1-6)"
4090 poke198,0:wait198,1
4100 geta$:ifval(a$)<1orval(a$)>6then4090
4110 onval(a$)goto4130,4580,4670,4760,4800,5370
4120 goto4090
4130 print"[CLR]":sys49152
4140 fori=1to40:poke1024+rnd(1)*1000,65:next
4150 print"[CD]1) new screen"
4160 print"[CD]2) last screen"
4170 poke198,0:wait198,1:geta$:gosub5500:print"[CLR]"
4180 ifa$="1"thenprint"[CLR]":goto4260
4190 ifa$<>"2"then4130
4200 fori=0to999:ifpeek(50000+i)>96thenpoke1024+i,32:goto4250
4210 ifpeek(50000+i)>0andpeek(50000+i)<65thenpoke1024+i,peek(50000+i):goto4250
4220 sh=peek(50000+i)-65
4230 sh=sh/3:sh=int(sh+48)
```

```
4240 poke1024+i,sh
4250 nexti
4260 sc=1024:cc=55296
4270 fori=55296to56295:pokei,3:next
4280 p1=peek(sc):p2=peek(cc)
4290 pokesc,160
4300 ford=1to20:pokecc,rnd(1)*16
4310 geta$:ifa$<>""then4370
4320 nextd
4330 pokesc,p1:pokecc,p2
4340 ford=1to20
4350 geta$:ifa$<>""then4370
4360 nextd:goto4290
4370 pokesc,p1:pokecc,p2
4380 ifa$="[CR]"thensc=sc+1:ifsc<2024thencc=cc+1:goto4280
4390 ifa$="[CL]"thensc=sc-1:ifsc>=1024thencc=cc-1:goto4280
4400 ifa$="[CD]"thensc=sc+40:ifsc<2024thencc=cc+40:goto4280
4410 ifa$="[CU]"thensc=sc-40:ifsc>=1024thencc=cc-40:goto4280
4420 ifa$="[CR]"thensc=sc-1:goto4280
4430 ifa$="[CL]"thensc=sc+1:goto4280
4440 ifa$="[CD]"thensc=sc-40:goto4280
4450 ifa$="[CU]"thensc=sc+40:goto4280
4460 ifasc(a$)>31andasc(a$)<64thenpokesc,asc(a$):goto4280
4470 ifasc(a$)>64andasc(a$)<91thenpokesc,asc(a$)-64:goto4280
4480 ifa$="[CTLE]"then4500
4490 goto4280
4500 fori=0to999
4510 ifpeek(1024+i)<48thenpoke50000+i,peek(1024+i):goto4560
4520 ifpeek(1024+i)>57thenpoke50000+i,32:goto4560
4530 sh=peek(1024+i)-48:sh=sh*3
4540 sh=sh+65
4550 poke50000+i,sh:poke55296+i,13
4560 nexti
4570 goto3960
4580 gosub5500
4590 input"[CLR][LGRN]save filename :";f$
4600 sys49152:fori=1to40:poke1024+rnd(1)*1000+1,65:next
4610 open2,8,2,"0:"+f$+",s,w"
4620 fori=49390to51000
4630 print#2,peek(i)
4640 nexti
4650 close2,8,2
4660 goto3960
4670 gosub5500
4680 input"[CLR][LGRN]load filename :";f$
4690 sys49152:fori=1to40:poke1024+rnd(1)*1000,65:next
4700 open2,8,2,"0:"+f$+",s,r"
4710 fori=49390to51000
4720 input#2,d
4730 pokei,d:nexti
4740 close2,8,2
4750 goto3960
4760 print"[CLR]press any key to exit...."
4770 gosub5500:ford=1to500:nextd
4780 sys49322:sys49152
4790 poke198,0:wait198,1:goto3960
4800 gosub5500:print"[CLR]compile filename:";:inputf$
4810 iflen(f$)>12thenf$=left$(f$,12)
4820 f$=f$+"-pac"
4830 readd:ifd=999999then4850
4840 goto4830
4850 fori=5448to5661:readd:pokei,d:next
4860 read d:ct=ct+1:if ct=9 then 4900
4870 if d>255 then4920
4880 if d= -999 then 4930
4890 poke i,d:i=i+1:ck=ck+d:goto4860
```

```
4900 if ck<>d then print "data error in line";peek(64)*256+peek(63):end
4910 ck=0:ct=0:goto 4860
4920 print "data range error in line";peek(64)*256+peek(63):end
4930 read d:if d<>ck then print"data error in line";peek(64)*256+peek(63)
4940 goto 5230
4950 data999999
4960 data 162,000,189,072,013,157,000,192,0785
4970 data 189,072,014,157,000,193,189,072,0886
4980 data 015,157,000,194,189,072,016,157,0800
4990 data 000,195,189,072,017,157,000,196,0826
5000 data 189,072,018,157,000,197,189,072,0894
5010 data 019,157,000,198,189,072,020,157,0812
5020 data 000,199,232,224,000,208,203,162,1228
5030 data 000,189,168,021,201,255,240,007,1081
5040 data 032,210,255,232,076,129,021,162,1117
5050 data 255,160,255,202,240,009,238,032,1391
5060 data 208,136,208,250,076,147,021,032,1078
5070 data 170,192,032,000,192,076,165,021,0848
5080 data 147,071,082,065,080,072,073,067,0657
5090 data 083,032,068,069,077,079,078,083,0569
5100 data 084,082,065,084,073,079,078,032,0577
5110 data 082,079,085,084,073,078,069,046,0596
5120 data 017,017,013,067,079,077,080,073,0423
5130 data 076,069,068,032,070,082,079,077,0553
5140 data 032,065,032,080,082,079,071,082,0523
5150 data 065,077,032,087,082,073,084,084,0584
5160 data 069,078,032,066,089,013,080,046,0473
5170 data 065,046,067,082,079,084,079,078,0580
5180 data 032,049,057,056,056,046,013,013,0322
5190 data 040,067,041,032,049,057,056,056,0398
5200 data 032,070,085,084,085,082,069,032,0539
5210 data 083,079,070,084,087,065,082,069,0619
5220 data 032,076,084,068,046,255,-999:0561
5230 fori=49152to51001
5240 poke3400+i-49152,peek(i)
5250 next
5260 print"[CLR]saving compiled code under ";f$
5270 print
5280 print"when this save is complete the computer will reset."
5290 print"[CD2]in future,to load the compiled version"
5300 print"type load 'filename',8,1 and then[SP7]sys5448 to start."
5310 ford=1to4000:nextd
5320 print"[CLR][CD2]poke44,8:poke43,0:poke46,22:poke45,38:save";chr$(34)+f$+chr
$(34);
5330 print",8"
5340 print"[CD7]sys64738[HOM]";
5350 poke198,6:fori=631to638:pokei,13:next
5360 end
5370 print"[CLR]"
5380 gosub5500
5390 input"[HOM][CD2][LGRN]starting shade (1-30)";s
5400 ifs<1ors>30then5390
5410 print"[CD][CYN]last shade (";s+1;"-31)";:inpute
5420 ife<s+1ore>31then5410
5430 input"[CD][WHT]colour (0-15)";c
5440 ifc<0orc>15then5430
5450 fori=49390+64+sto49390+64+e
5460 pokei,c:nexti
5470 goto3960
5480 ifa$="a"then5370
5490 goto3960
5500 poke52000,120:poke52001,169:poke52002,49:poke52003,141:poke52004,20
5510 poke52005,3:poke52006,169:poke52007,234:poke52008,141:poke52009,21
5520 poke52010,3:poke52011,88:poke52012,96:sys52000:return
```

3D PLOTTER

William Sellers

C128 (and +4)

This is a program that will plot some fancy 'wire frame' graphic representations of some complex math functions . . . in 3D no less!!

NOTE:BE VERY CAREFUL WHEN YOU ENTER THIS PROGRAM. IT IS VITAL THAT LINES 10 AND 20 ARE ENTERED EXACTLY AS SHOWN, INCLUDING THE LINE NUMBERS! LINE 20 CONSISTS OF REM FOLLOWED BY 75 *'S.

(This program is self modifying and the function is poked in place of the *'s in line 20.)

PROGRAM FORMATTED FOR EASY ENTER

Easy Enter Codes
[SP2] means type 2 spaces
[CD3] means type 2 cursor downs
[CLR] means type the clear screen char
[HOM] means type the cursor home key

```
10 GOTO40
20 REM*************************************************************************
*
**
30 RETURN
40 GOTO810
50 PRINT"[CLR]CLEAR HIGH-RES SCREEN[SP2](Y/N)?":POKE239,0
60 GETA$:IFA$="Y"THENGRAPHIC1,1:ELSEIFA$="N"THENGRAPHIC1:ELSE60
70 GOSUB520
80 I=0:P=-SX
90 FORQ=SYTO-SY STEP-PY
100 GOSUB420:GOSUB360:GOSUB450
110 NEXT
120 FORQ=SYTO-SY STEP-GY
130 I=0
140 FORP=-SXTOSXSTEPPX
150 GOSUB420
160 GOSUB360
170 GOSUB450
180 NEXT
190 NEXT
200 GOSUB520
210 I=0:Q=SY
220 FORP=-SXTOSXSTEPPX
230 GOSUB420:GOSUB360:GOSUB450
240 NEXT
250 FORP=-SXTOSXSTEPGX
260 I=0
270 FORQ=SYTO-SY STEP-PY
280 GOSUB420
290 GOSUB360
300 GOSUB450
310 NEXT
320 NEXT
330 GOSUB770
```

```
340 GRAPHIC0
350 RETURN
360 REM CONVERT TO SCREEN COORDINATES
370 A=(P+Q)/(2*S)
380 B=S*(Z*ZF+(P-Q)/(2*S))
390 U=INT(HX+A+.5)
400 V=INT(MY-(HY+B/R)+.5)
410 RETURN
420 REM Z FUNCTION
430 X=P*XF+XD:Y=Q*YF+YD
440 GOTO20
450 REM HIDDEN LINE
460 IFV<VH(U)ANDV>VL(U)THENI=0:RETURN
470 IFV>VH(U)THENVH(U)=V:ELSEGOTO480
480 IFV<VL(U)THENVL(U)=V:ELSEGOTO490
490 IFI=0THENLOCATEU,V:ELSEDRAW1TOU,V
500 I=1
510 RETURN
520 REM SET VH AND VL
530 FORJ=0TO320
540 VH(J)=-1E30:VL(J)=1E30
550 NEXT
560 RETURN
570 REM SETUP PARAMETERS
580 MX=319:MY=199:SCNCLR
590 INPUT"ORIGIN[SP3]X[SP2]160[CL5]";HX
600 INPUT"ORIGIN[SP3]Y[SP2]100[CL5]";HY
610 INPUT"[CD]SIZE[SP5]X[SP2]192[CL5]";SX:SX=SX/2
620 INPUT"SIZE[SP5]Y[SP2]192[CL5]";SY:SY=SY/2
630 INPUT"[CD]GRID SIZE[SP3]12[CL4]";GX
640 GY=GX
650 INPUT"[CD]LINES/GRID[SP2]4[CL3]";PX:PX=GX/PX
660 PY=PX
670 INPUT"[CD]LOWEST[SP2]X VALUE[SP2]-1[CL4]";XL
680 INPUT"HIGHEST X VALUE[SP3]1[CL3]";XH
690 INPUT"[CD]LOWEST[SP2]Y VALUE[SP2]-1[CL4]";YL
700 INPUT"HIGHEST Y VALUE[SP3]1[CL3]";YH
710 INPUT"[CD]Z SIZE (REL.X)[SP3]1[CL3]";ZR:ZF=ZR*SX*2
720 INPUT"[CD]ASPECT RATIO[SP2]1.6[CL5]";R
730 S=SQR(2)/2
740 XF=(XH-XL)/(2*SX):YF=(YH-YL)/(2*SY)
750 XD=XL+SX*XF:YD=YL+SY*YF
760 RETURN
770 REM PRESS ANY KEY TO CONTINUE
780 PRINT"[CD]PRESS ANY KEY TO CONTINUE"
790 GETA$:IFA$=""THEN790
800 RETURN
810 REM INITIALISATION
820 HX=150:HY=100:SX=96:SY=96:GX=12:PX=4:PX=GX/PX:XL=-1:XH=1:YL=-1:YH=1
830 ZR=1:ZF=ZR*SX*2:R=1.6:S=SQR(2)/2:PY=PX:GY=GX
840 XF=(XH-XL)/(2*SX):YF=(YH-YL)/(2*SY)
850 XD=XL+SX*XF:YD=YL+SY*YF
860 MX=319:MY=199
870 COLOR0,1:COLOR1,2:COLOR4,1
880 SCNCLR
890 PRINT"INITIALISING......."
900 GRAPHIC1:GRAPHIC0
910 DIMVL(320),VH(320)
920 GOSUB1590
930 T1=9:T=11
940 REM MAIN MENU
950 SCNCLR
960 PRINTTAB(T1);"[REV]┌──────────────────┐"
970 PRINTTAB(T1);"[REV]| SURFACE PLOTTER |"
980 PRINTTAB(T1);"[REV]└──────────────────┘"
```

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```
990 PRINTTAB(T);"[CD3]SELECT OPTION:"
1000 PRINTTAB(T);"[CD2](1) FUNCTION"
1010 PRINTTAB(T);"[CD](2) PARAMETERS"
1020 PRINTTAB(T);"[CD](3) PLOT"
1030 PRINTTAB(T);"[CD](4) PRINT"
1040 PRINTTAB(T);"[CD](5) QUIT"
1050 GETA$:A=VAL(A$):IFA<1ORA>5THEN1050
1060 ONAGOSUB1080,570,50,1500,1570
1070 GOTO940
1080 REM FUNCTION
1090 PRINT"[CLR]INPUT FUNCTION AS A BASIC STATEMENT"
1100 PRINT"[CD]USING X AND Y AS VARIABLES WITH THE"
1110 PRINT"[CD]RESULT AS Z"
1120 PRINT"[CD3]USE Z1,Z2,Z3....ETC AS OTHER VARIABLES"
1130 PRINT"[CD2]COMMAND LIST:"
1140 PRINT"[CD]AND ATN COS EXP LOG OR SIN SQR TAN"
1150 PRINT"[CD]+ - * / ↑ > < = : ( ) IF THEN ELSE"
1160 AD=16397
1170 A$="":F$=""
1180 PRINT"[CD3]?";
1190 GETKEYA$:PRINTA$;
1200 IFA$=CHR$(20)THENF$=LEFT$(F$,LEN(F$)-1):GOTO1190
1210 IFA$<>CHR$(13)THENF$=F$+A$:GOTO1190
1220 G$=F$
1230 H$="IF":I$=" "+CHR$(139):GOSUB1450
1240 H$="THEN":I$="[SP3]"+CHR$(167):GOSUB1450
1250 H$="ELSE":I$="[SP3]"+CHR$(213):GOSUB1450
1260 H$="AND":I$="[SP2]"+CHR$(175):GOSUB1450
1270 H$="ATN":I$="[SP2]"+CHR$(193):GOSUB1450
1280 H$="COS":I$="[SP2]"+CHR$(190):GOSUB1450
1290 H$="EXP":I$="[SP2]"+CHR$(189):GOSUB1450
1300 H$="LOG":I$="[SP2]"+CHR$(188):GOSUB1450
1310 H$="SIN":I$="[SP2]"+CHR$(191):GOSUB1450
1320 H$="SQR":I$="[SP2]"+CHR$(186):GOSUB1450
1330 H$="TAN":I$="[SP2]"+CHR$(192):GOSUB1450
1340 H$="OR":I$=" "+CHR$(176):GOSUB1450
1350 F=LEN(F$)
1360 FORX=1TOF
1370 A$=MID$(F$,X,1)
1380 A=INSTR("+-*/↑[SP2]>=<",A$)
1390 IFA=6THEN1420
1400 IFA=0THENPOKEAD,ASC(A$):ELSEPOKEAD,169+A
1410 AD=AD+1
1420 NEXT
1430 POKEAD,ASC(":"):POKEAD+1,143
1440 RETURN
1450 REM FIND AND REPLACE STRINGS
1460 A=INSTR(F$,H$)
1470 IFA=0THENRETURN
1480 MID$(F$,A,LEN(H$))=I$
1490 GOTO1460
1500 REM PRINT
1510 OPEN4,4:PRINT#4,"FUNCTION: ";G$;CHR$(13)
1520 PRINT#4,"RANGE OF X VALUES : ";XL;" TO ";XH
1530 PRINT#4,"RANGE OF Y VALUES : ";YL;" TO ";YH
1540 PRINT#4,"Z SCALE FACTOR[SP4]: ";ZR:CLOSE8
1550 SYS(4864)
1560 RETURN
1570 REM END
1580 END
1590 REM POKE IN SCREEN DUMP ROUTINE
1600 PA=4864:DC=0:CT=0:LN=1710
1610 READ A:DC=DC+1
1620 IF A=-999 THEN 1700
1630 IF DC=9 THEN 1660
```

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C64 Sound Expander on disk with over 200 voices, £20 sound sampler £10 (see CCI April p.108 for details). Tel Penketh 8775 after 6p.m.

Amiga user wants to swap top software, all letters will be answered. Send to: Einar Lid, Ture Nermansvei 45, 5033 Fyllingsdalen, Norway

Star SG-10C Commodore Compatible NLQ Printer for sale. Condensed, expanded, italic and bold text. All CBM graphics, boxed as new, manual etc. £130. Phone 061 366 8874 after 4p.m., ask for Brian.

C64 games: all new and original. Titles as GAC, Mercenary, Lord of the Rings, Gold Collection, Ninja. Send S.A.E. for list to 50 Carlisle Mansions, London SW1P 1HY or call (01) 828 4755

Amiga games "Dpaint" £30, "Knight Orc" £10, turn Amiga into C64! "Go 64!" New from U.S.A. Unwanted gift. Call Xavier after 5.00p.m. (01) 828 4755 (next to Victoria Station)

Amiga software for sale, all originals, at less than half price. Write to Phil Briggs, 160 Eastfield Side, Sutton-in-Ashfield, Notts NG17 4JZ (Digitizer wanted)

Games for C16 and Plus 4. Brand new, original hits. 30% below normal retail prices. Send for lists. Mr Job, 45 Blenheim Court, Hove, East Sussex BN3 4AJ

Swap the very latest C64 progs, games and demos on disk only! Send disks or list to 36 Friar Road, Brighton, England BN1 6NH. All disks answered

Amiga user wants to contact with other Amiga users for swapping programs and tips. Write to H. Risan, 7633 Frosta, Norway

C64 owner wants to swap software all over the world. Send list to Hans Morten Hansen, Box 220, N-4056 Tananger, Norway

C64/128 software to swap latest games utilities, Send disks/lists to Kev, 20 Camden Road, Gillingham, Kent ME7 1QU or phone 0634 577370

Amiga Modula Z compiler, developers version £80 o.n.o. Feud £6 o.n.o. Marble Madness £12 Star Glider £14 Sinbad £20 all originals Tel. 01 655 0228

CBM 64 pokes, booklet contains over 130 pokes for just £2.00. Send cheques, P.O.'s, wrapped coins to: Howard Lock, 26 Cricketers Road, Ablesley, Bedfordshire SG15 6SP

Fly Soft Club wishes to buy or to swap all newest for C64 & Amiga 500 with others. All letters answered. Max. reliability

Amiga 1000, 512K, 1081 monitor, DPaint, DVideo, DPrint, Textcraft, User Guides. Good condition, almost unused. Make me an offer – Teignmouth (06267) 78578.

C64 disk drive cassette, 500 disks expert and Epyx cartridge, 3 joysticks 100s of mags, many extras, £400 051 480 7434.

Amiga software to swap over 200 latest titles, please contact Karl Zaremba, 211 Beverley Drive, Queensbury, Edgware, Middlesex HA8 5NL or phone 01 951 3967 fast.

Plus/4 owner wishes to swap software with anyone anywhere, send lists to Peter Burridge, 14 Blackbird Glen, Erskine Park 2759, Australia.

Amiga 500 brand new, two years extended warranty, software, blank disks, disk holder, keyboard cover, audio leads, mouse, drive cleaning kit, joystick, manuals, mouse, mat, Neil Tucker, Flat B, Swinford Manor School, Great Chant, Ashford Kent. TN23 3BT. Phone 0233 23670.

C64 owner wants to swap the latest disk stuff! Send disks or lists to Henrik Holmdahl Kakelösag, 67 431 44 Mölndal, Sweden.

1541 disk drive, lockable disk box, over 28 disk, including Defender of the Crown, Strike Fleet, Gunship, only £170. Aman on 553 2328 after 4pm.

Evesham excelerator plus disk drive, perfect condition, only two months old, under guarantee, only £100. Phone 699 5012.

Amiga programmes to swap, many new, overseas welcome, send disks(s) or list to Ian Learmonth, 26 Barley Lane, Kingsthrope, Northampton NN2 8AT.

CBM 64, MPS 801 printer, various tapes, £200 ono for sale, as I now own 128D. Phone 061 225 6838 after 6pm.

C64C + C2N datasette + £200 of software, many classic games, only £135 for whole package. Phone Amit on 01 989 8963.

Commodore 64 cassette deck, 1541c disk drive, MPS801 printer over £1000 of software including GEOS, Assembler, latest hit games and Action Replay, Mk1Vpro £450 the lot. Phone Ben on 0822 832212.

C64 user wishes to swap programs worldwide, disk only, also wanted, Radio Amateur programs, all letters answered, Ray 413 Gleneagles Avenue, Rushey Mead, Leicester LE4 7YJ.

C64/128 user with 200 games on tape and disk wishes to swap games worldwide, send a list to Darren Priestnall, 57 Burton Street, Leek, Staffs, ST13 8DA.

New Amiga owner would like to swap games and demos with anyone, send lists or disks to me. All letters answered. Leo, 89 Etty Avenue, Tang Hall Lane, York, North Yorkshire. Phone 0904 414420.

For sale, 65 original C16 games, very cheap, must go, I need the cash, contact me for a list. Please write to Roy Robinson, 112 Cliff Road, Hornsea, N. Humberside, HU18 1JE.

Norwegian 64 owner wants to swap software with American 64 freaks, disk only. Thomas B Unnvik, CJ Hambros V1 7080 Heimdal, Norway.

CBM Plus/4 datasette, centronics, interface, light pen, script/plus, WP, 3 advent carts £200+, worth, software, joystick, books/mags, offers? or will split. Phone 01 952 4836.

Amiga penpals wanted, over 500 programmes, write to Theresa J Giacoumatou, 18 Grarias Street, Argyroupolis, 16451, Athens, Greece. All letters answered, please send lists, disks.

Amiga contacts wanted, please send lists to Shane, PO Box 333, Cobram Vie 3644, Australia.

Commodore 64, 2 recorders, disk drive, (Excelerator), Diskmate II (cartridge) paddles, joystick, games and magazines, will sell for £295 ono. Phone 686180 ask for Nik.

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Amiga 500 user wishing to swap software, ideas, tips and info, with people all over the world, contact Even Ambjornrud, Gustvedt, N-1827 Hobol, Norway.

Commodore 128 1570 disk drive, Quickdisk II, cartridge, joystick, 60 disks of various software and library box, excellent condition, & boxed, £350 ono, call Lee, late evenings on 01 206 1691.

For sale Commodore 128D with cassette loader, light pen, mouse, joysticks and loads of software, £350 ono. Phone 0582 872857 evenings and weekends.

Plus/4 disk owner wants to swap programmes (I have got nearly 500), send lists to Peter Preuss, Remmelesweg 5, 7107 Bad Fr'hall, Germany, all letters answered.

64 owner wishes to swap games, utilities all over the world! Disk only! Send list to Tah, Hamarveien 26b N-2600 Lille-Hammer, Norway.

New Amiga owner seek other new Amiga freaks for swapping & other. Preben Oevergard, Simlevn 5, N2400, Elverum, Norway. Phone 064/13714.

Amiga 500, 2 months old with guarantee, 2nd disk drive, memory expansion, TV modulator, graphics tablet, 56 assorted disks including latest games all for £795 ono. Phone 01 907 6599.

Commodore 64 desk top computer & floppy disk & basic & script £170 ono. Phone 0707 320529.

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```
1650 CK=CK+A:POKE PA+CT,A:CT=CT+1:GOTO1610
1660 DC=0:IF CK<>A THEN 1680
1670 PRINT CHR$(147);LN:CK=0:LN=LN+10:GOTO 1610
1680 PRINT"DATA ERROR IN LINE";LN:END
1690 PRINT"DATA RANGE ERROR IN LINE";LN:END
1700 RETURN
1710 DATA 169,004,170,160,255,032,186,255,1231
1720 DATA 032,192,255,162,004,032,201,255,1133
1730 DATA 032,028,019,169,004,032,195,255,0734
1740 DATA 032,204,255,096,169,008,032,210,1006
1750 DATA 255,032,079,020,169,001,141,127,0824
1760 DATA 020.169.063.141.126.020.169.000.0708
1770 DATA 141,122,020,141,125,020,173,125,0867
1780 DATA 020,201,001,240,039,173,126,020,0820
1790 DATA 141,120,020,173,127,020,141,121,0863
1800 DATA 020,032,107,020,032,095,020,032,0358
1810 DATA 107,020,032,095,020,032,107,020,0433
1820 DATA 032,095,020,032,228,019,110,128,0664
1830 DATA 020,076,141,019,173,126,020,056,0631
1840 DATA 233,003,141,120,020,173,127,020,0837
1850 DATA 233,000,141,121,020,032,228,019,0794
1860 DATA 110,128,020,032,095,020,032,107,0544
1870 DATA 020,032,095,020,032,107,020,032,0358
1880 DATA 095,020,032,107,020,173,121,020,0588
1890 DATA 016,008,173,128,020,041,015,141,0542
1900 DATA 128,020,173,128,020,056,106,032,0663
1910 DATA 210,255,032,210,255,174,122,020,1278
1920 DATA 232,142,122,020,224,200,208,049,1197
1930 DATA 169,000,141,122,020,032,079,020,0583
1940 DATA 174,125,020,232,142,125,020,224,1062
1950 DATA 002,208,030,169,000,141,125,020,0695
1960 DATA 056,173,126,020,233,007,141,126,0882
1970 DATA 020,173,127,020,233,000,141,127,0841
1980 DATA 020,016,006,169,015,032,210,255,0723
1990 DATA 096,076,054,019,169,000,133,100,0647
2000 DATA 169,032,133,101,173,122,020,041,0791
2010 DATA 007,024,101,100,133,100,173,120,0758
2020 DATA 020,041,248,024,101,100,133,100,0767
2030 DATA 165,101,109,121,020,133,101,173,0923
2040 DATA 122,020,041,248,141,123,020,169,0884
2050 DATA 040,141,124,020,032,053,020,024,0454
2060 DATA 173,123,020,101,100,133,100,173,0923
2070 DATA 124,020,101,101,133,101,173,120,0873
2080 DATA 020,041,007,170,160,000,177,100,0675
2090 DATA 042,202,016,252,096,160,008,169,0945
2100 DATA 000,010,046,124,020,144,009,024,0377
2110 DATA 109,123,020,144,003,238,124,020,0781
2120 DATA 136,208,238,141,123,020,096,169,1131
2130 DATA 013,032,210,255,169,128,162,040,1009
2140 DATA 032,210,255,202,208,250,096,173,1426
2150 DATA 120,020,208,003,206,121,020,206,0904
2160 DATA 120,020,096,032,228,019,110,128,0753
2170 DATA 020,032,228,019,110,128,020,096,0653
2180 DATA 000,000,000,000,000,000,000,000,0000
2190 DATA0,-999
2200 REM ************************
2210 REM * 3D PLOTTER <C> 1987 *
2220 REM * BY WILLIAM SELLERS  *
2230 REM ************************
```

Program Submission Procedure

DO NOT submit any program or routine that you do not either own or have property authority to do so.

ALWAYS include your name, address and the date on all material and any enclosures.
Do not forget to make it clear exactly which computer/s your program or article is applicable to.

Include ROM or DOS versions wherever they are pertinent.

If you have to submit work which is hand-written then you must make sure it is printed clearly.

Number all pages.

Never use staples. Use paperclips if necessary.
If you are saving your program to tape then save it AT LEAST twice on each side.
When you save a program on disk save it twice and call the second file "BACKUP"

Remember to label all tapes and disks with your name and the title of the program. Label tape or disk with your name and the name or title of the program.

Always ensure that disks are well packaged. They should ideally be sent in a commercial disk mailer or at least packed between two pieces of hardboard or rigid plastic.

Please allow at least 8 weeks for acknowledgement as all programs have to be thoroughly tested and made into a suitable format.

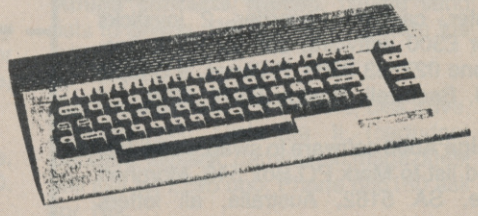
Enclose a self-addressed stamped envelope or package if you would like your program to be returned.

★ Programming tips ★
If you can, use CHR$(x) type commands instead of those hard to read graphic symbols.
If necessary renumber your program on completion a many readers use auto number utilities to ease typing in.

Try to keep instructions within the program itself at a sensible level. You can expand on them within the accompany text if necessary.

TEST your programs before submitting them or even better get a friend to test them for you.

If a program contains machine code data please use decimal and not hex as there are fewer digits to be confused. Try and keep the same number of data statements in each line. Please add some form of error checking if your program contains more than five lines of data.



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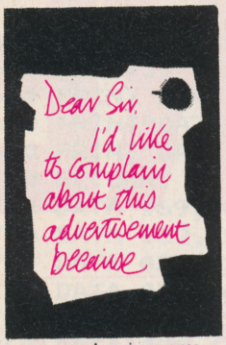

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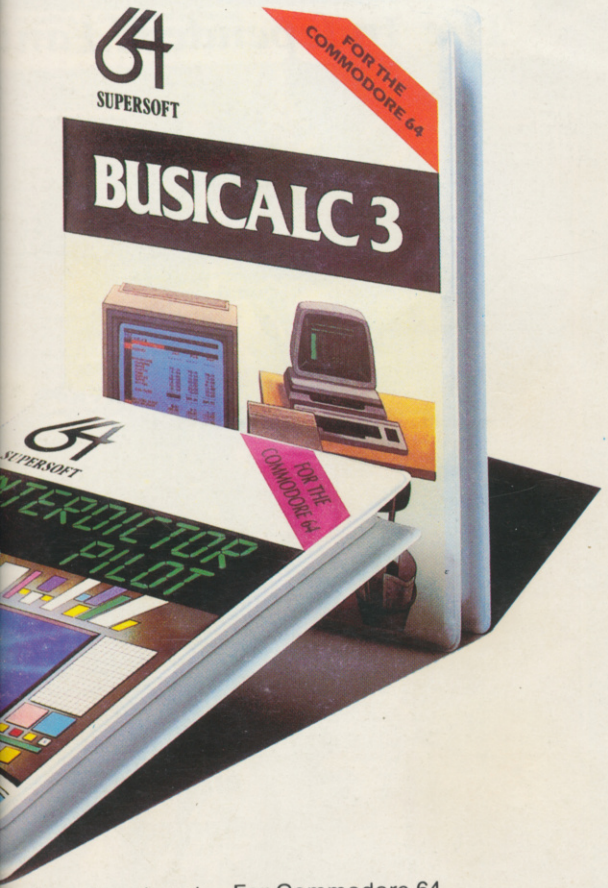

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